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ORTHOPEDICS OF TODAY *

WALTER G. STERN, M.D.
CLEVELAND

The domain of medicine is not divided by arbitrary and inflexible rules into realms of endeavor with immutable and unchanging boundaries. Its progress is kaleidoscopic; the dividing lines between the specialties are forever changing; fields are enlarging and contracting. Each has its fruitful years, to be followed by more or less lean periods. The medical profession on the whole has always been quick to give recognition to any constituent group that most successfully helps it to solve its immediate problems, and, by its quick confidence in calling on the group for aid and consultation, to award it the palm of superiority.

So it is today with orthopedics.

Scarcely a decade ago, a large part of an executive session of one of the major orthopedic societies was taken up in the discussion of the proper spelling and the correct derivation of our title—was it from the Greek or was it a hybrid Latin? Was it spelled with an e or an ae? Today we are no longer concerned about the past meaning of orthopedics; our eyes have turned to the larger problems of the future, problems which were scarcely sensed, certainly not realized, ten or fifteen years ago. Yet to our immediate orthopedic ancestors—of whom we may count ourselves fortunate to have still with us our good friend Dr. John Ridlon of Chicago—we owe the very foundations on which we are building today. It is by following their rich and sage advice that we have succeeded in cultivating our field in such a manner that the "seven fat years" have seemingly arrived; that the labors so assiduously carried on are approaching their fruition.

Before the war, in the days when the meaning of a word could assume such significance for busy physicians, orthopedics, as the word itself suggests, dealt largely with the diseases of the young; with the child crippled by congenital defects, tuberculosis, rickets, infantile paralysis and the like. Infrequently an adult was treated, and the orthopedic interest in traumatic and industrial surgery, so important today, was then unthought of.

Now the picture has become entirely different. In the past so much attention was focused, and rightly so, on the crippled child that institutions grew up everywhere for its proper care, treatment and education. For this reason alone, the crippled child no longer is a major problem for the profession. Moreover, the diseases of children which we were formerly called on to treat have themselves become less. Along with lessened and restricted immigration, the general birth rate has been lowered, so that, together with better prenatal and maternity care and better cooperation on the part of the poor, the number and also the proportion of those born with deformities has greatly diminished. Because of improved hygienic conditions, greater emphasis on proper nutrition and a higher scale of living, rickets, tuberculosis and the preventable diseases are becoming less and less common. True, infantile paralysis has not been stamped out; however, this is not an orthopedic problem but rather one for the hygienist. As far as the care of the crippled child is concerned, orthopedics has played its part well.

Today we deal, therefore, less with the malformed young and more with the crippled adult. Changing industrial conditions have changed our duties, so that with the coming into existence of industrial insurance and mutual benefit projects as an integral part of industrial life, more and more attention has become focused on the problems of the wage earning adult. There is every justification for the confidence that medical, legal, insurance and industrial workers are placing in the orthopedist when they bring him their problems, for a crippling joint is, after all, but a crippling joint. Whether it is caused by a fracture, osteomyelitis or tuberculosis in childhood, by the gonorrhea of adolescence or by a fracture or infection of adult life, it remains, primarily, a crippled joint. If the problem is to find its final solution in orthopedics, then our specialty should be concerned as well with the solution of the conditions that led up to this final outcome. If the orthopedist is to be entrusted with the cure of the final condition, then it is but logical to entrust him with the cure of the primary bone or joint manifestation causing it, so that the unfortunate crippling condition can best be avoided.

This, at least in the central western section of this country, is the history of modern orthopedics. More and more, as Dr. R. N. Gray, medical referee of the California division of the Aetna Insurance Company, pointed out in the January, 1928, issue of the *Journal of Bone and Joint Surgery*, the feeling has come about that the orthopedist should be called on to handle all the more serious fractures; it is especially important that he be called on early. Dr. Gray has collected statistics on patients with fractures who have come to his company for adjustment and has compared those treated by orthopedists within two weeks of the injury with those whose treatment was in the hands of the general practitioner. He has found that in serious cases, such as, for instance, injury to the femur, there is a great saving of money to the company and time to the patient when the injury is turned over to the specialist within two weeks. Dr. Gray concludes that the specialist alone is properly qualified to care for such conditions.

* Chairman's address, read before the Section on Orthopedic Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

Though the shifting of the status of orthopedics might have been observed by a keen man, even before the war, there is no doubt that the war had the greatest influence in speeding up the change. It has been reported that 65 per cent of the American soldiers invalided back home presented orthopedic problems; certainly 50 per cent of them did. When the first wounded returned from the front, the hospitals found themselves overwhelmed by the large number of bone injuries they were called on to treat; injuries which all too often called not only for skilled surgical intervention but, in order that the best results might be obtained from the operation, for skilled postoperative therapy. All too often this was not available. Skilled orthopedic surgeons were not too many under the most favorable circumstances and the hospitals were all undermanned. At first the best that could be done was to send patients who had been operated on to rest camps. Often the benefit of the operation was lost by lack of proper after-care. It was out of this chaos that modern orthopedics, as we know it today, was born. When the problem of restoring mechanical function to thousands of disabled soldiers arose, the solution was sought from the orthopedic surgeon. The result was not only the development of greater skill in the new type of operations and therapy demanded by war wounds but the realization that the ultimate success of operative procedures depended largely on the kind of after-care the injured received. Orthopedics had to broaden its field. The importance of the reeducation of the muscles became evident to the orthopedist; hydrotherapy, electrotherapy, psychotherapy, massage and special exercises were developed by capable assistants. The control of these special departments by the orthopedic surgeon has become one of the outstanding features in the development of orthopedics.

Today, the treatment of veterans of the World War is largely undertaken by special governmental institutions and is no longer the problem of orthopedics in general; yet the development which the war started has continued. It would have come without the war, no doubt, but it probably would have come more slowly, more gradually, possibly without the orthopedists themselves realizing the changing times or the possibilities that lay before them. As it was, the skilled surgeons who had seen war service, and the younger men, trained by the war to the orthopedic point of view, returned home filled with this new conception of their own particular phase of medicine.

They found that things had not stood still at home, for conditions were changed there as well. Industry had progressed by leaps and bounds and industrial life presented a different picture than when they sailed for France. Everywhere, in every state, industrial commissions had come into being, giving testimony that the state was assuming authority for the welfare of its citizens and was asserting its right to control their working conditions. More and more the orthopedist found himself called on to render judgment in matters that were of social and legal importance. He not only was called in to treat conditions which were the result of injuries attending industrial accidents but was asked by the industrial commissions and insurance companies to give his advice as to the extent and permanence of these injuries and to offer suggestions as to reconstructive treatment. His work has become largely traumatic. To this he brought to bear the knowledge born of his previous experience and his especial orthopedic point of view and ability. He developed departments of electrotherapy, hydrotherapy and massage, and hospitals for the reeducation of the injured. In all of this he was the inspirer and the leader.

With this immediate past before our eyes, with the progress which orthopedics has made in the past years plain for all to recognize, it remains for us to consider what the future holds. It is for us to retain what we have thus far achieved, for us to realize that the orthopedics of today is entirely different from the orthopedics of yesterday. It is for us to go ahead and assiduously cultivate the field that we may continue to enjoy the recognition which better work will bring.

Today we may hope that we have reached the place where general medicine will definitely recognize that orthopedic surgery is now the study and treatment of the diseases and injuries of the bones and joints. Such recognition, I believe, is close at hand.

1304 Hanna Building.

THE COMPOSITION OF CIGARETS AND CIGARET SMOKE*

EMIL BOGEN, M.D.
CINCINNATI

The aggressive merchandising methods of the manufacturers and distributors of cigarets have given an impetus to their use in hitherto unconsidered directions. The claim has been made in many advertisements that particular types of cigarets differ in their toxic effects from others. Many smokers have asserted that they recognize marked differences in the irritating properties and other effects of the smoke of different brands of cigarets. Since so many persons, although acknowledging the deleterious effects of the habit, find it impossible to refrain from smoking cigarets, information regarding the relative toxicity of different kinds of cigarets is of practical value.

More than 286 brands of cigarets have been found on the American market, and new ones are being introduced all the time. The classification of cigarets presents many difficulties. It is possible, however, to recognize the pure oriental cigarets made of Turkish and Egyptian tobacco, the pure domestic brands made of Virginia and Carolina tobaccos, and the many blends, or mixtures of different tobaccos in varying proportions, as well as the West Indian cigarets, made of tobacco from Cuba, Mexico and Porto Rico. The so-called denicotinized cigarets, as well as the brands containing menthol or other added medication, are composed for the most part of blends of oriental and domestic tobacco (table 1).

In an extensive study of the "blindfold test" at Reed College, Louis Goodman found his subjects unable to tell anything about the cigarets they smoked without seeing the label. In view of the widespread advertising application of this procedure, verification of his results was felt advisable. A questionnaire was therefore made out to present the background of the subject, and six cigarets, with the name label carefully covered by a band containing a number, were given to each of a mixed group of professional men, university students and laborers. These subjects all reported that they had been smoking cigarets for more than three years, most of them for more than ten, and the average number of cigarets used daily was nearly one package of

* Read before the Section on Pharmacology and Therapeutics at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

twenty. Their reports showed considerable disagreement as to which cigarets were "strong" or "mild," the class of tobacco from which they were made, or the name of the cigarets tested. The majority, however,

TABLE 1.—*A Classification of Cigarets*

	I. Oriental	
Abdullah	Haidee	Natural
Benson and Hedges	Hassan	Nestor
Carmen	Helmar	Omar
Cincinnati Club	Lord Salisbury	Pall Mall
Condax	Macedonia	Philip Morris
Dimitrino	Melachrino	Rameses
Egyptian Deities	Milo	Salome
Egyptian Straights	Mogul	Stephanos
English Ovals	Murad	Turkish Trophies
	II. Blends	
Barking Dog	Listerine	Picayune
Camel	London Sports	Revelation
Chesterfield	Lucky Strike	Spud
Clown	Marlboro	Strollers
Dunhill	Menthorets	Sunshine
Fatima	North State	Silver King
Favorite	Old Gold	Tareyton
Home Run	One Eleven	Three Castles
Johnny Walker	Pep	Wellington
	III. Domestic	
Old Mill		Players Straight Cut
Piedmont		Richmond Straight Cut
	IV. West Indian	
El Toro	Havana	Primores
	V. Denicotinized	
O Nic O		Sackett No. 1
Sano		Sackett No. 2
	VI. Tobacco Free	
Blosser's		Requa's Cubebs

distinguished the West Indian and oriental cigarets from each other and from the blends and the pure domestic brands (table 2).

TABLE 2.—*Percentage Results of Blindfold Tests*

Replies	A	B	C	D	E	F	Total
Strong	25	20	30	40	75	10	
Medium	55	40	35	35	15	30	
Mild	20	40	35	25	10	60	
Domestic	70	30	35	85	10	10	Right, 69; wrong, 31
Blend	25	60	50	15	10	10	
Oriental	5	10	5	..	20	75	
West Indian	..	..	10	..	60	5	
Correctly named	25	25	65	65	75	80	61
Incorrectly named	75	75	35	35	25	20	39

In order to investigate this further, the subject who made the best score on these tests was repeatedly examined, both with the cigarets covered by the numbered bands and with the use of a blindfold, to rule out any possible aid that inspection of the banded cigaret might have given him, and in every case he recognized the class of cigaret given him and described its strength consistently, although he missed occasionally in attempting to differentiate between cigarets of the same class. It was concluded, therefore, that the negative results found in the larger group, as well as those reported by Goodman, were due to the fact that the majority of smokers, although apparently experienced, fail to appreciate the fine points necessary for the discrimination between cigarets, but that some exceptional smokers may have the ability to distinguish between different classes of cigarets and even, perhaps, between different brands of the same general class of cigarets.

The moisture content of tobacco varies with changes in the humidity of the surrounding atmosphere from less than 8 to more than 50 per cent of its weight. The moisture content of a score of brands of cigarets, as taken from the package, was found to average 12 per cent. It is interesting to note that the brand of cigarets widely advertised as "toasted" showed a comparatively high content of moisture. The inorganic ash remaining after combustion of the cigaret was determined for more than sixty different brands and found to be quite consistently related to the source of the tobacco. It bears, in general, an inverse relationship to the nicotine content of the cigaret. The pure domestic varieties yielded less than 12 per cent of their weight as ash, while the West Indian cigarets gave as high as 18 per cent. Medicinal cigarets, such as cubebs, containing no tobacco, yielded less than 10 per cent of their weight as ash (table 3).

About a hundred determinations of the nicotine content of different cigarets were made by means of the silicotungstic acid method. The results obtained are in substantial agreement with the fragmentary data to be found in the literature. Domestic cigarets contained the highest concentration of nicotine, averaging about

TABLE 3.—*Average Ash Content of Cigarets*

Kind	Per Cent
Domestic brands	11.9
Blends	13.9
Oriental brands	15.6
Denicotinized	15.8
West Indian	18.3
Tobacco free	8.6

2.5 per cent. The West Indian brands, on the other hand, contained the lowest nicotine content of any tobacco tested, generally under 1 per cent. The oriental cigarets had from 1.25 to 1.5 per cent nicotine and the blends or mixtures of domestic and oriental tobacco, which constitute the majority of the popular brands, vary from 1.5 to 2.5 per cent. Naturally the cubebs and other forms of cigarets containing no tobacco showed no nicotine at all on analysis, but the so-called denicotinized cigarets, as has been shown by Bailey, contain more nicotine than do some of the West Indian varieties, and little less than the ordinary oriental brands. It is apparent, therefore, that simply by choosing the brand of cigaret to be used, the amount of nicotine to which the smoker is exposed can be materially increased or reduced (table 4).

The nicotine, however, is not the only injurious agent to be found in cigaret smoke. Local irritation from the aldehydes formed during the combustion, from ammonia produced from other nitrogenous substances during the course of the smoking, and from the heat

TABLE 4.—*Average Nicotine Content of Cigarets*

Kind	Per Cent
Domestic brands	2.50
Blends	1.90
Oriental	1.44
Denicotinized	1.10
West Indian	0.86
Tobacco free	0.00

of the smoke itself, as well as the irritating tarry substances comprising the so-called tobacco oil, may not be disregarded. Headaches and other effects of inhalation of carbon monoxide and lack of oxygen, and the effects of changes in the acidity of the smoke, should not be overlooked. These substances, as well as many others to be found in cigaret smoke, may not be discovered in the unburned tobacco, and it is only by analysis of the smoke itself that they may be investigated.

An apparatus was therefore constructed for controlled combustion of the cigaret and the collection of all the smoke and fumes produced, both that drawn through the cigaret, the so-called mainstream, and that escaping from the burning end, the "sidestream." The smoke was allowed to settle for an hour and the remaining gas was then analyzed in a modified Orsat gas analysis apparatus for oxygen, carbon dioxide, carbon monoxide and residual nitrogen. The materials condensed on the sides of the jars were washed down with distilled water, and the solution analyzed for ammonia by means of Nessler's solution, for aldehydes by Rippert's iodine method, for nicotine by the silicotungstic acid method, for furfural by Youngburg and Pucher's method, and for free and total acids and alkalis.

Before considering the differences between the smoke obtained from different cigarets, it is necessary to notice that the composition of the smoke from any cigaret depends to a great extent on the manner and the rate with which it is smoked. The "sidestream" or smoke from the burning end of the cigaret ordinarily constitutes the greater part of the actual material given off from the combustion, as shown by its content of carbon dioxide. It contains, however, only a comparatively low concentration of carbon monoxide, since nearly all of the burning end is well exposed to oxygen and therefore is nearly completely oxidized. The nicotine concentration may be quite considerable if little or no suction is used, but almost disappears from the "sidestream" when a strong suction is employed, as in rapid smoking. The ammonia given off into the "sidestream" is at all times quite considerable, easily sufficient in itself to account for the irritation of the eyes and nose caused by exposure to the direct smoke from the burning end of a cigaret held not far away. This only in part accounts for the high degree of alkalinity of this smoke, however, which is alkaline even to phenolphthalein and requires from 3 to 6 cc. of tenth-normal acid to neutralize it completely. Ordinarily the smoke coming off the burning end of the cigaret is of more consequence to the nonsmokers in the vicinity than to the smoker himself, although he is, of course, exposed to it in the same, or even greater, measure. Simply holding a lighted cigaret in the hand, it appears, produces more toxic materials in the room air than result from active smoking when the smoke is drawn through the tobacco and into the mouth (table 5).

TABLE 5.—*Composition of Cigaret Smoke: Analysis of the "Sidestream" Collected from the Burning End*

	No Suction	Intermittent Suction		Continuous Suction	
Duration of combustion...	12 Min.	10 Min.	5 Min.	5 Min.	2 Min.
Carbon dioxide.....	320 cc.	336 cc.	208 cc.	224 cc.	160 cc.
Carbon monoxide.....	8 cc.	12 cc.	12 cc.	8 cc.	12 cc.
Nicotine.....	13 mg.	9 mg.	4 mg.	2.5 mg.	1.5 mg.
Ammonia.....	2.2 mg.	3.0 mg.	1.4 mg.	1.6 mg.	1.4 mg.
Aldehyde.....	1.4 mg.	1.3 mg.	1.0 mg.	1.0 mg.	0.5 mg.
Furfural.....	0.4 mg.	0.4 mg.	0.2 mg.	0.2 mg.	0.1 mg.
Alkali, tenth-normal.....	4.2 cc.	4.1 cc.	3.2 cc.	3.6 cc.	3.4 cc.

Examination of the "mainstream" of smoke sucked through the cigaret reveals a much different state of affairs. This smoke, which cannot be secured, naturally, without the use of suction, varies widely in composition, both qualitatively and quantitatively, depending on the rate at which it is produced. It usually constitutes less than 800 cc. of gas per cigaret, so that it is actually greatly diluted in the act of puffing or inhaling it during smoking. It is at all times acid to methyl red and contains practically no ammonia at all. The carbon monoxide concentration increases rapidly with faster smoking, with a rising respiratory quotient, which, instead of unity found at the burning end or with negligible suction, approaches one and a half in the case of very strong suctions and rapid combustion. It seems that the oxidation reactions occurring under these conditions are accompanied by important reducing reactions, so that oxygen is liberated from some of the compounds in the cigaret, as well as taken in from the air (table 6).

The nicotine content of the mainstream of smoke increases also with the speed of smoking, so that with rapid suction nearly half the nicotine in the tobacco may be so carried over. The aldehydes show a similar but somewhat less rapid change. When one smokes with small intermittent puffs, so that the cigaret does not burn down in less than ten minutes to the two thirds mark, the amount of carbon monoxide, nicotine and aldehyde contained in the smoke forms but a small fraction of that obtainable by fast and furious smoking. In addition, of course, the slower smoker consumes a lesser total number of cigarets in a day.

TABLE 6.—*Analysis of the "Mainstream" Drawn Through the Cigaret*

	Intermittent Suction		Continuous Suction	
Duration of combustion.....	10 Min.	5 Min.	5 Min.	2 Min.
Carbon dioxide.....	21 cc.	55 cc.	56 cc.	63 cc.
Carbon monoxide.....	3 cc.	16 cc.	10 cc.	11 cc.
Nicotine.....	0.2 mg.	2.0 mg.	2.5 mg.	6.5 mg.
Ammonia.....	0.0 mg.	0.1 mg.	0.0 mg.	0.1 mg.
Aldehyde.....	0.4 mg.	1.4 mg.	1.3 mg.	2.9 mg.
Furfural.....	0.0 mg.	0.2 mg.	0.1 mg.	0.2 mg.
Acid, tenth-normal.....	0.5 cc.	0.3 cc.	0.8 cc.	1.2 cc.
"Respiratory quotient".....	1.0	1.3	1.3	1.5

When different brands of cigarets are smoked under the same conditions, the gaseous products show little difference, and the distribution of the various substances between the mainstream of smoke sucked through the cigaret and that emerging from the burning end is quite similar to the figures just discussed. There is a great difference, however, in the total amount of aldehydes and ammonia produced from the domestic cigarets, as compared with that produced from oriental or West Indian varieties. As has been previously reported by British workers, American tobacco seems to produce many times as much aldehydes, including the furfural, as do the oriental brands, while the latter yield somewhat more of the ammonia. It appears from the analysis of the smoke, therefore, that the irritation of the throat complained of by smokers cannot be due to the ammonia, since the smoke that is inhaled does not contain this substance to an appreciable extent, although it is found in quite substantial amounts in the sidestream smoke from the burning end, which may produce irritation when it gets into the eyes and nose of the smoker or his neighbor. The alkalinity of the smoke is subject to the same consideration. The aldehydes, which include furfural among others, though to only a small extent, and the nicotine are to be condemned here, but the fact that the West Indian cigarets, which are poor in both of these substances, are generally reported as highly irritating and strong shows that they cannot explain the entire condition. The temperature and the physical and chemical effects of the tarry constituents of the smoke must also be considered (table 7).

The length of the stump, or the amount of cigaret left unburned, is another factor of considerable

importance. The amount of nicotine and other materials removed from smoke by passing through the tobacco of the unburned part of the cigaret varies with the amount of the smoke so passing, and its concentration, as well as with the dryness of the smoke, the rate of suction, the temperature of the smoke and of the tobacco, the length of the stump, the fineness of the

TABLE 7.—*Analysis of the "Sidestream" Produced in the Absence of Suction*

	Blend	Oriental	West Indian
Aldehyde	1.8 mg.	0.8 mg.	0.6 mg.
Furfural	0.4 mg.	0.08 mg.	0.06 mg.
Ammonia	3 mg.	4 mg.	4 mg.
Alkali, tenth-normal	4.0 cc.	4.8 cc.	4.2 cc.

particles of tobacco and the firmness of the packing, and so forth. The amount of nicotine found in the stump of a cigaret which had been smoked with a strong continuous suction to the two thirds mark was found to have increased by 4 mg., or 66 per cent, over the average nicotine content of this brand of cigarets. When an intermittent suction of one second puffs of 60 cc. each every thirty seconds for five minutes was used, the increase amounted to only 15 per cent. A number of stumps of these cigarets actually smoked by subjects in the course of the blindfold test studies were analyzed and found to contain 16 per cent more nicotine than the average for these cigarets; in other words, about 1 mg. of nicotine had condensed in the stump of each cigaret during the smoking of about half of it (table 8).

The temperature of the smoke after passing through the unburned tobacco in half the length of the cigaret is never greater than that of the human body. When only a fourth of the cigaret is left unburned, however, the maximum temperature of the smoke after passing through it may exceed 60 C. (140 F.), and so injure

TABLE 8.—*Nicotine Content of Cigaret Stumps*

	No Suction	Intermittent Suction		Continuous Suction
Duration of combustion	12 Min.	10 Min.	5 Min.	2 Min.
Nicotine, per cent by weight	1.80	2.06	2.22	3.00
Nicotine in stump	6 mg.	6.8 mg.	7.4 mg.	10.0 mg.
Nicotine increase	.....	0.8 mg.	1.4 mg.	4.0 mg.

the tissues of the mouth and throat. Moreover, the smoke passing through the unburned stump at such high temperatures is apt to carry with it into the throat much of the nicotine and other condensed substances which, as has just been described, are deposited in the tobacco of the stump during ordinary smoking. Different cigarets all gave the same range of temperatures when smoked at exactly the same rate, and changes in the rate of smoking seemed to be effective only in accelerating or retarding the time required to reach the critical region of the cigaret at which the temperature rapidly rises, but which remains at about the same spot in every case. In order to avoid the irritation from hot smoke and the increase in the toxic agents which such smoke may carry, it is advisable never to smoke a cigaret down much beyond half its length.

The chemical composition of the cigaret and of its smoke are not the only factors that affect the physiologic response of the smoker. Inhalation of the smoke so that it may condense on larger surfaces than merely the mouth cavity, and its passage over the mucous membranes of the nasopharynx and the lower respiratory passages, is naturally followed by a greater deposition and consequent absorption of nicotine and other components than results from simply puffing the smoke in and out of the fore part of the mouth.

While smoking after mealtime may relieve nervous strain, increase digestive secretions and allay appetite in a harmless manner, the use of the cigaret before meals is apt to impair appetite and interfere with the normal stimuli to the digestive processes, resulting in the production of various dyspeptic symptoms. The formation of conditioned reflexes in connection with smoking is a common occurrence, so that certain smokers require their cigarets before their routine mental or physical labors may be consummated, or even before such natural functions as sleep or defecation. The rôle of idiosyncrasy, the development of tolerance, the factors affecting absorption, destruction and excretion of the nicotine and other constituents of the smoke and the physiologic responses to them, as well as their toxicologic importance, await further investigation.

TABLE 9.—*Pains and Pleasures of Cigaret Smoking*

Percentages reported by subjects of blindfold tests.

I. The Pleasures of Smoking	Per Cent	II. The Ill Effects of Smoking	Per Cent
Sociability	65	Shortness of breath	35
Fragrance	60	Biting and irritation	30
Relaxation	50	Coughing	30
Stimulation	50	Burning	15
Steadying nerves	45	Nausea	10
Smoothness, mellowness and soothing	35	Palpitation of heart	5
Quieting hunger	30	Hoarseness	5
Sight of the smoke	25	Salivation	5
Feel in the lips	25		
Feel in the hand	10		
Taste	5		

The subjects of the blindfold tests reported "sociability," fragrance, relaxation, stimulation and the steadying of their nerves as the chief sources of pleasure in smoking. Nearly half of them suffered from "nervousness" as a result of stopping smoking, and many developed a definite craving or "hunger" for a smoke. On the other hand, many ascribed shortness of breath and coughing to their use of the cigaret, and others reported burning or irritation of the tongue and mouth and other symptoms (table 9). A study of more than 600 men in the course of an investigation of common colds showed that those who used a package of cigarets a day or more were much more frequently underweight than their fellows, and reported more often for treatment for acute respiratory infections, while those who used no cigarets at all were more frequently overweight and showed a lower incidence of respiratory infections (table 10).

TABLE 10.—*Cigaret Smoking in an Industrial Population*

	A Study of More Than Six Hundred Men			
	Nonsmokers	Light Smokers	Heavy Smokers	Total
Overweight	104	88	21	213
Normal weight	63	70	23	156
Underweight	115	111	35	261
Total	282	269	79	630

Under ordinary conditions, many competent observers have failed to note any deleterious effects whatever from the use of cigarets. Certain conditions, however, have been so frequently associated with the practice of smoking that the causal connection seems indisputable. Cardiac arrhythmias, shortness of breath, thromboangiitis obliterans, nicotine amblyopia and chronic inflammations of the upper respiratory passages are

familiar examples. A host of other pathologic consequences of smoking tobacco have been cited, by careful and conservative clinicians as well as by extreme and unreliable propagandists. An extensive review of the literature has been summarized as follows: "A sound individual may bear what is for him moderate doses without injury, but even these are often noxious to the unsound or to other sound individuals. But the immoderate use of tobacco brings on a series of disturbances which are at first functional, then organic, and of which some are not without gravity."

Different brands of cigarets differ widely in the proportions of their constituents, and differences in the manner of smoking may greatly modify the composition of the smoke they yield. Laboratory analysis may serve to determine what these are and what effects may be expected from them. The physiologic cost to a particular individual of smoking a certain brand of cigarets in actual practice may then be more intelligently estimated. It still remains for the smoker to decide whether he desires to pay this price for the enjoyment he derives from it.

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ABSTRACT OF DISCUSSION

Dr. H. H. Canfield, Seattle: I regret that for our better information the speaker did not enlarge a little on what the effects are. I have been impressed that as physicians we are not fully aware of them, and knowing that there are a large number of psychologic and physiologic experiments—laboratory work that has been done—I feel that he should speak of these investigations. It might be helpful to us. I know that Edison has considered at length the poisonous effects of furfural, as derived from the cigaret, its influence on the nervous system, and the certainty of harm. A lot of these things have been studied extensively, and if the author would say something more about effects I would like it very much.

Dr. C. H. Thienes, Portland, Ore.: I have been working along the same line. Instead of using tobacco smoke, however, I have used the most active ingredient, nicotine, and have injected it subcutaneously into mice and rats. My first interest was to determine the effect on growth, so I began with young mice and carried them to maturity. I found that the controls were a little lighter than those that received nicotine, in spite of the fact that the dose I used was sufficient to produce convulsions. In rats I got a similar effect, although at the present time the average weight of my nicotinized rats is a little below that of the others, but what it will be a month from now it is hard to say, because the lines cross and recross. Of course this does not mean that smoking will not retard the growth of a small boy, because there may be something other than tobacco smoke which will be harmful to him. I say this because I feel that our whole knowledge of the effect of smoking is so slight, and our opinions are so divided, that we have no basis on which to pass judgment. The nonphysiologic effects on the susceptible are well known, but of its effects on the average man we have very little knowledge.

Dr. Emil Bogen, Cincinnati: I purposely did not take up the clinical effects, first, because I have done no experiments on them myself, and, secondly, because a book was published recently which summarized the results of more than 900 investigations, and shows so much conflict between different writers, especially on the laboratory studies, that it seems that much more extensive work will be needed before we can determine definitely the value of any of the work that has been published as yet. Since that book was published, there have appeared a number of other articles in the past year which are interesting but not conclusive. The impression which I obtained was that although some individuals may show no effect from smoking, the same dose may affect others, and a larger dose may affect them. A considerable literature has developed from the study of war gases and the study of local irritant effects of different gases, and it may be of interest to note that the cigarets which most of my subjects reported as being the most irritant were the West Indian cigarets, which contained comparatively no nicotine. It is not sufficient, therefore, to consider only the nicotine content of the tobacco as being responsible for all the physiologic effects reported. There is need for more study, both on the chemical composition of smoke and different conditions and on the clinical effects which can be caused by it.

VALUE OF NEPHROLYSIS, URETEROLYSIS AND NEPHROPEXY IN SELECTED PATIENTS *

VINCENT J. O'CONOR, M.D.
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Modern methods of clearly outlining the ureter and renal pelvis with opaque material in the roentgenogram and additional studies of the so-called emptying time of the upper urinary tract have furnished definite objective diagnostic data of great value.

It might seem that, with these procedures at one's command, sufficiently accurate data could be obtained to decide whether or not, in a carefully studied patient, abnormal renal mobility actually resulted in distressing or injurious sequelae.

However, the recognition of obstructive processes in and about the ureteral lumen has resulted in such controversy as to the true etiology of upper urinary tract obstruction that the subject of movable kidney cannot be considered apart from such lesions as are tabulated under the headings of ureteral stricture, ureteral kinks, angulation of the ureter, renal torsion and early hydronephrosis. Furthermore, the interpretation of ureteropyelograms by the more experienced observers varies so greatly that when the various opinions are correlated with the idea of fairly analyzing the diagnostic and therapeutic problems of ureteral obstruction, whatever the underlying cause may be, one finds oneself obliged to turn to an analysis of personal experience to arrive at a satisfactory conclusion.

Surgeons having primary interest in therapeutic procedures of the urinary tract have gradually come to a new recognition of the value of operative measures which would free the kidney and ureter and restore pelvic and ureteral drainage by proper fixation of the kidney itself. The indications for such operative intervention in these instances are based on accurate adherence to urologic data and not on the ordinary physical symptoms which formerly led to unnecessary surgical procedures and a resultant widespread repudiation of so-called nephropexy or kidney fixation.

Kelly,[1] Burford,[2] Mathé,[3] Fowler, Kolischer[4] and others in this country have reported their successful treatment of persons with "ptosis" of the kidney. In their patients, accurate urographic observations confirmed the indications for operation.

Bransford Lewis and B. A. Thomas have recently made similar contributions, as yet unpublished.

The occasion of this report necessitates a brevity that precludes an extensive review of the literature and any attempt at detailed study of individual case reports. The roentgenographic data and follow-up analysis,

* Read before the Section on Urology at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 11, 1929.

1. Kelly, H. A., and Burnam, C. F.: Diseases of Kidneys, Ureter and Bladder, New York, D. Appleton & Co. **1**: 459, 1915.

2. Burford, C. E.: Nephropexy for the Relief of Ureteral Kinks, Associated with Ptosis, J. A. M. A. **88**: 541 (Feb. 19) 1927.

3. Mathé, C. P.: Movable Kidney, Surg. Gynec. Obst. **40**: 605 (May) 1925.

4. Kolischer, Gustav: Nephrolysis and Ureterolysis, J. Urol. **8**: 149 (Aug.) 1922.

which are complete in each instance, will be limited to a few illustrations and a generalized summary.

This contribution is based on a careful study of thirty consecutive operations for the relief of malposition of the kidney and ureter, associated with faulty drainage, persistent urinary infection or early hydronephrosis, and clinically manifested by lumbar, abdominal or pelvic pain with or without objective or subjective symptoms referable to the urinary tract.

INCIDENCE

In 1,118 routine hospital urologic examinations conducted to determine the possibility of upper urinary tract disease, the diagnosis of abnormal mobility of the kidney was recorded in sixty-seven patients; sixty-three of these were females and four were males. The clinical situation prompted advice for operative intervention in forty-one of these individuals. Thirty accepted operation, six are still under observation, and five did not return for further advice. Of the six still under my care, four have had no relief from nonoperative therapy and two are partially improved after complete progressive dilation of the ureter.

Of the thirty patients in whom nephrolysis, ureterolysis and nephropexy were performed, twenty-nine were females and one was a male.[5] The only point of interest as to etiology was that nine of these patients associated the onset and course of their trouble so intimately with mechanical injury, and the operative observations so closely tallied with this supposition, that their condition has been definitely classed as traumatic in origin.[6] One cannot, of course, overlook the fact that in these individuals there were undoubtedly predisposing factors which made this traumatic displacement possible. In this regard it is interesting to note that Kelly found a history of injury in only thirteen of 242 cases diagnosed as movable kidney causing clinical symptoms.

In these thirty patients, the right kidney was displaced in twenty-six and the left in one (definite trauma); there was bilateral displacement in three (one definitely traumatic in origin). Eighteen had infection of the affected kidney and fourteen of these had been previously treated by removal of foci of infection, renal lavage and ureteral dilation. In twenty-two patients, ureteral dilation and conservative measures were carried out by me for periods of from six months to three years without permanent relief of pain or of urinary infection when present. Sixteen of these patients had been previously operated on for the complaint cited at the time they first came under my observation. In no instance had relief been obtained. In eleven the appendix had been removed; in three operation for fixation of the uterus had been done, and two had had gallbladder exploration without removal.

METHODS OF DIAGNOSIS

Ureteral catheterization with complete analytic and bacteriologic examination of the divided urine was performed in every instance, in addition to pyeloureterography in both the prone and the upright positions. Since the work of Goldstein[7] on fractional ureterography, twelve of these patients have had careful studies as to the emptying time of the pelvis and ureter. I consider this additional information as of great aid in deciding whether pelvic or ureteral stasis should be relieved by ureteral dilation alone, operation alone, or combined dilation and operation. In the twelve so studied, the pelvis showed an emptying time of from thirteen to sixty-six minutes. The normally draining ureter and pelvis is usually emptied of opaque material in from six to eight minutes, and I consider a retention after ten minutes as definitely abnormal. The patient is kept in an upright position during these observations.

The tip of the ureteral catheter was always kept in the lower ureter during the instillation of the opaque solution (12.5 per cent sodium iodide) and was then completely removed while fractional ureteropyelograms were being made.

From my observations of these patients, both roentgenologic and anatomic, I am inclined to believe that ptosis of the kidney in itself is merely a contributory factor in the development of ureteral and pelvic stasis. When there are no abnormal peripelvic or periureteral attachments or adhesions, the free course of pelvic or ureteral drainage seems rarely interrupted. But when sclerotic adhesions or posterior peritoneal attachments result in compression or angulation of the ureter in its course from the pelvis to the bladder, the descent or rotation of the kidney results in obstruction and angulation at these areas. These conditions are frequently, but not always, confirmed at operation if great care is taken in the process of freeing the pelvis and ureter from their surrounding attachments. I believe it is for this reason that ureteral dilation by bougies introduced within the lumen of the ureter gives only temporary or no relief of the obstruction in this type of pathologic condition.

The technic of operation therefore not only must include a proper replacement of the kidney in as nearly normal a position as possible but must also provide for a complete freeing of the kidney, kidney pelvis and ureter from surrounding attachments, before the restoration of position is attempted.

Interval Elapsing After Operation in Author's Cases

8 years	2 patients	4 years	6 patients
7 years	4 patients	3 years	4 patients
6 years	3 patients	2 years	4 patients
5 years	5 patients	1 year	2 patients

Of the thirty patients operated on, abnormal periureteral or pelvic attachments were demonstrated in sixteen. In six there was a persistent lobulation of the kidney and in eight an anomalous or bipolar blood supply. In none of the latter instances was there ureteral or pelvic compression from the anomalous vessels such as is frequently seen in more marked hydronephroses. In two instances there was a complete reduplication of the pelves and ureters.

The surgical technic adopted in these cases combines complete ureterolysis and nephrolysis (freeing of kidney and ureter) and suspension or fixation by a method which I have found to insure most satisfactorily a high fixation of the kidney.[8]

CLINICAL RESULTS

Twenty-two of these patients have been seen and examined by me since Jan. 1, 1929. The remaining eight have written to me or have been reported on by their physicians since June 1. The time elapsing since operation is given in the accompanying table.

5. H. H. Young states that, in 12,000 males admitted to the Brady Clinic, nephropexy was performed ten times with relief.

6. O'Conor, V. J.: Traumatic Dislocation of the Kidney, Surg. Clin. North America **7**: 743 (June) 1927.

7. Goldstein, A. E.: Scientific Study of the Normal Human Ureter by Fractional Ureteropyelography, J. Urol. **6**: 125 (July) 1921.

8. The detailed technic of this operation will be found in a previous article on this subject entitled "Nephrolysis, Ureterolysis and Nephropexy," Arch. Surg. **18**: 1263-1272 (April) 1929.

Symptomatically these patients classify their result as follows: completely well, twenty-one patients; greatly improved, six patients; somewhat improved, two patients; not improved, one patient. (The latter patient was one with right lumbar and pelvic pain and a complete double ureter and pelvis, both of which presented marked urinary infection and which I had treated by nonoperative measures for three years with only temporary relief. At operation I avoided nephrectomy because of the good renal function persisting).

When asked whether they were glad they had had this operation, twenty-four patients replied in the affirmative, four "did not know" and two replied in the negative.

OBJECTIVE RESULTS

Ten of these patients returned this year solely at my request for ureteropyelographic studies. As might be inferred, all were among those who considered themselves well, but I was interested in proving the present condition of the renal position and urinary drainage in an accurate manner.

Not one of these patients had an emptying time of more than seven minutes after the pelvic instillation of 8 cc. of 12.5 per cent sodium iodide solution. In eight the outlines of the pelvis and ureter were normal and in two there was still a moderate pelvic dilatation without retention. In one there was a broad angulation of the ureter without obstruction.

SUMMARY

1. Freeing of the kidney and ureter and suspension of the kidney (nephrolysis, ureterolysis and nephropexy) are efficient and justifiable when applied in carefully studied cases.

2. The diagnosis rests on accepted urologic procedures utilizing modern methods of ureteropyelography and on a consideration of the mechanics of the upper urinary tract.

3. The mere presence of abnormal renal mobility is not to be considered pathologic unless clinical and objective study demonstrates definite indication of deficient ureteral or pelvic drainage.

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ABSTRACT OF DISCUSSION

DR. H. W. HOWARD, Portland, Ore.: Dr. O'Conor spoke of the difficulty of interpreting ureterograms. That is true. The current method of making pyelograms is faulty because it does not meet the physical requirements of the undertaking, viz., (1) adequate and complete filling without distention, and (2) quieting of peristalsis while the exposure is being made. Tight fitting of the catheter at the ureter ostium, and a predetermined intra-ureteral pressure which is considered to be physiologic, satisfy the mechanical requirements. I am in the habit of employing Garceau or tapered catheters and an intra-ureteral pressure of approximately 20 mm. of mercury. Another point is that, when these lateral pyelograms are taken, the kidney shows ptosis almost as well as if the patient were in the upright position. So if conveniences are not at hand for making a pyelogram in the upright position, I think it will be found that the lateral view will show about the same degree of ptosis.

DR. CHARLES P. MATHÉ, San Francisco: Dr. O'Conor's excellent results in performing nephrolysis, ureterolysis and nephropexy are unquestionably due to his careful selection of patients. It is well recognized that abnormally low kidneys do not necessarily give rise to marked disturbances, as evidenced by the large number of patients in whom they are found not causing any symptoms. As high as 40 per cent of women have renal ptosis with the kidneys often lying below the iliac line. However, in a certain percentage of cases undue mobility causes hydronephrosis, kinking of the ureter, and renal torsion, and is a large factor in the persistence of chronic pyelonephritis and infection of the perirenal and periureteral tissues. In order to determine the relation of movable kidney to the production of symptoms, it is necessary to demonstrate pelvic retention in making the ureteropyelogram in the vertical position. Reproduction of pain by filling the pelvis is also of value. Unfortunately, it is not constant, as some patients with fairly well advanced hydronephrosis experience no pain when the pelvis is completely injected. The method that Dr. O'Conor employs in performing a nephropexy in which decapsulation is done is of great importance. Because many of us are employing the Kelly operation, nephrolysis is not included in suspending the kidney. It is particularly important to decapsulate the kidney when chronic infection has caused perinephritis and paranephritis. In performing any corrective operation on the kidney, it is necessary to expose the upper ureter and to relieve periureteritis or any pathologic condition which might be present and which, unrelieved, would defeat the purpose of the operation.

DR. WILLIAM C. QUINBY, Boston: Nephropexy was popular in years past. Then it fell into disrepute, undeserved in many instances. It is of use in some cases. How can we tell which ones? Dr. O'Conor has shown us. Instead of offering us a personal opinion he shows us definitely what kidneys can be so treated with the expectation of good results, and what kidneys should not be so treated. The method of pyeloscopy used to evaluate the emptying time of the kidney pelvis is one of great importance.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: Dr. O'Conor has given us a careful study and a sane exposition of the subject of nephropexy. While I agree with him in most of his statements, I question whether the percentage of his patients with renal ptosis requiring nephropexy is as high as he claims. Although we probably have been too conservative in our stand toward the surgical treatment of renal ptosis in the past, I hope that his paper will not inspire urologists to promiscuous nephropexy in every patient who is found to have a floating kidney. We observe annually at our clinic many patients who have had the kidney fixed elsewhere. Pyelography in these cases shows in most instances that the operation was successful, and yet the patients continue to have the same pain that they had before operation. Many of these patients were evidently not carefully studied or selected. Some of them had pyelograms made and the urologist erroneously inferred in his interpretation that indications were present for nephropexy. Interpretation of urograms with renal ptosis is frequently quite difficult, since there may be evidence of slight pyelectasis and ureterectasis without any actual constriction in the ureter. This dilatation in many cases is explained best by an atonic condition of the ureter or pelvis and it is evident that nephropexy can hardly remedy such a condition. A suggestion has been made that pyeloscopy should be used and that fractional retention tests should also be made in these cases. I should like to endorse such examinations in doubtful cases, and I believe that evidence of persistent retention of injected mediums may be a large factor in indicating operation. Before surgery is advised it should first be determined whether the symptoms are on a functional basis, and whether there is any condition in the abdomen or pelvis that is causing the symptoms of which the patient complains. We certainly should not be guided by the patient's symptoms alone. Before one decides on operation there should be definite urographic evidence of disease present, and the patient should have a careful physical and neurologic examination as well. In doubtful cases, exploration of the pelvis and abdomen should precede nephropexy.

DR. A. I. FOLSOM, Dallas, Texas: There are certain symptoms which I require as necessary criteria before I am willing to fix a kidney. First, the pain must be classically located in the loin. Second, it must be aggravated by the erect position, and definitely relieved by lying down. Third, it must be definitely reproduced by distention of the kidney pelvis. I believe that when these definite requirements are met, the great

majority of patients will be relieved by a properly performed nephropexy. The operation had a period of popularity and then fell into disrepute because we operated for every floating kidney we saw. In other cases we did not properly fix the kidney, and the postoperative care did not hold it in the position in which it was placed. Regarding the technic, there is a great difference of opinion. I do not use any sutures at all in the nephropexy I do. I free the kidney posteriorly and anteriorly, and free the upper end of the ureter. I think one thing cannot be emphasized too much, and that is that the anterior surface of the lumbar group of muscles must be freed of all fat, so that no fat can intrude itself between the muscle group and the posterior surface of the kidney. I build a bed under the lower pole of the kidney by means of an iodoform gauze pack which supports it in the position in which I place it. Another thing which I consider important is the after-treatment. I wish Dr. O'Conor would tell us how he treats his patients after the operation. I think the Trendelenburg position is very important, the bed being elevated 18 inches and kept in that position for two weeks and sometimes longer. I believe this is definitely of importance. Dr. Braasch fears that we will get into an orgy of fixation of kidneys but I think we shall never go back to where we were several years ago when every one was fixing kidneys regardless of what the symptoms were. I have not carried out the fractional pyelographic study as Dr. O'Conor has but consider it a great adjunct to our routine technic. I think the clinical criteria I emphasized first are extremely important in these cases.

DR. L. P. PLAYER, San Francisco: One point in regard to pain reproduction has not been mentioned. In making the cystoscopic study, instead of filling the kidney pelvis with mediums with the patient in the supine position, I have found that if the pyelogram is made immediately after ureteral catheterization, with the patient in the upright position, the reproduction of pain means more, as there is not the irritation due to having made the injection in the supine position.

DR. WILLIAM E. STEVENS, San Francisco: Pyelograms taken with the patient in the Trendelenburg as well as in the supine and upright positions are frequently of value. One can then observe whether or not the kidney will slip up into its proper position readily, and an idea as to the extent of the operative procedure required may then be obtained.

DR. VINCENT J. O'CONOR, Chicago: Apparently Dr. Braasch feels that we should be a little apologetic in bringing this subject up again. We all wish to avoid needless surgery and whenever we feel that freeing and suspending of the kidney is actually indicated, we desire that our end-results prove the value of the proper diagnosis and operative procedure. In the past we have often been placed in the position of apologizing to the general surgeons for performing this type of operation. The reason for this was that incomplete diagnosis two or three decades ago led to a rather wholesale practice of needless and ill advised nephropexy. The general attitude on this subject has not been altered to conform with modern methods. I do not apologize for renewing the interest in this subject. I present my data, honestly and carefully compiled, so that others may draw their own conclusions. I do not wish to start propaganda for nephropexy; on the contrary, I feel that one who reviews these results carefully will be more conservative than ever in finding the indication for its use. The main point is that there are patients in whom faulty urinary drainage can be corrected by this procedure. Dilation of the ureter in seventeen of these patients failed to cure the symptoms. The operative procedure succeeded. So far as the operative technic is concerned, when I was working with Dr. Quinby he used to remove the fat and decapsulate the kidney and by placing the patient in the Trendelenburg position for two weeks he obtained excellent results without the use of any suspending sutures. Keeping a patient in this position after manipulation of the kidney results in a great deal of discomfort. There is postoperative meteorism and difficulty in urination. I have adopted the operative procedure, previously described, to avoid the necessity of elevating the bed. The patient lies quietly in bed for two weeks while the suspending adhesions are being formed. Packing with iodoform gauze is not necessary and interferes with convalescence and wound healing.

PROGRESS IN THE PREVENTION OF DEAFNESS

THROUGH THE USE OF THE AUDIOMETER IN THE PUBLIC SCHOOLS *

HORACE NEWHART, M.D.
MINNEAPOLIS

Three years ago at the Dallas session of the American Medical Association, Dr. E. P. Fowler with Dr. Harvey Fletcher and I presented before this section two papers dealing with the use of the audiometer in the detection of loss of hearing among school children. The widespread prevalence of potential deafness among this group was pointed out and the need for an accurate periodic examination of the hearing acuity of all school children was emphasized. With generous understanding, the section, to encourage an important step in school hygiene, adopted a resolution favoring the periodic testing of the ears of all school children by methods sufficiently delicate to detect even slight loss of hearing. This resolution was at once endorsed by the House of Delegates, and it has since been adopted by all of the national bodies of otolaryngologists and by other national, state and local organizations.

The movement to secure the periodic testing of the hearing acuity of school children by accurate means, as a first step in a comprehensive effort to prevent deafness, was largely instigated by the deafened persons themselves, represented by their national organization, the American Federation of Organizations for the Hard of Hearing, founded by the past president of the American Medical Association, Dr. Wendell C. Phillips. It received its greatest impulse through the development of the audiometer, especially the 4-A or multiple telephone audiometer, a product of the Bell Telephone Laboratories. Because of its greater accuracy, delicacy, practicability, speed and economy of application, this instrument has proved itself immeasurably superior to older methods for testing acuity in large groups.

Three years after the initiation of the movement, to determine as far as possible the extent and effectiveness of the use of the 4-A audiometer, to learn how greatly it is valued by those having had experience with it and with the further object of ascertaining how its usefulness might be increased, I recently sent out questionnaires (with apologies) to all known users of the 4-A instrument in public schools. Eighty-one inquiries were sent out. Thirty-four replies containing data useful for my purpose were received. Many courteously acknowledged the receipt of the questionnaire but reported having had insufficient experience to give helpful information.

Twenty cities, each of more than 100,000 population, five cities of from 50,000 to 100,000 inhabitants, and nine cities of less than 50,000 population, in all, thirty-four cities having an aggregate population of 6,835,685, with a total school enrolment of 887,012, reported that during the school year 1928-1929, 225,263 pupils had been tested. Many important cities have not been included; likewise, private schools and universities in which extensive work has been carried on have been left out. At a conservative estimate, since the beginning of the movement not less than 400,000 children have been tested with the audiometer. This is a record

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of real progress and achievement, in view of the short time that has elapsed since the idea was first introduced and in view of the fact that there has always been marked indifference and no little skepticism toward efforts at prevention of deafness. It is of interest that eleven of the thirty-four cities which have reported are in Massachusetts. This is the result of the activities of an able committee of the American Federation of Organizations for the Hard of Hearing, formed to study the deaf child, whose chairman is Mrs. Anne C. Norris of Boston.

Already thousands of children, many with unsuspected and therefore neglected loss of hearing, have been discovered and corrective measures instituted. Many hundreds have been given the advantage of instruction in lip reading and of closer supervision by the teacher. Others who were backward in their classes and looked on as stupid, after having had their handicap due to deafness revealed, have been given proper treatment greatly to their advantage. The direction of public attention to the need for a periodic hearing test and the possibilities of prevention of deafness are among the valuable results of these activities.

The most striking feature revealed by the data is the apparently wide variation in the incidence of loss of hearing reported from different communities. These seeming discrepancies are readily accounted for by definite climatic and seasonal variations affecting the upper respiratory tract, by differences in the age of those tested, by the handicap of language, especially among younger children of foreign parentage, by variations in intelligence, and by the prevailing economic and hygienic conditions in the home. Likewise, the experience of those conducting the tests, the frequency with which they check their apparatus, which is nearly ideal in its reliability, and especially the amount of noise existing in the room at the time of making the tests are all factors in causing observable but negligible variations in the results. The one purpose of these examinations is to disclose persons with a loss of hearing that may be progressive if the underlying pathologic conditions are not promptly removed.

Many of these discrepancies will be eliminated through a greater experience, by a standardization of the technic in making the tests, and by greater uniformity in checking, tabulating and interpreting the results. This demands the skill, training and experience of the otologist.

In several of the larger cities an otologist directs this work. Seven communities maintain a diagnostic school clinic for diseases of the ear. In two of these, therapeutic work is attempted. Eighteen reporters acknowledge difficulty in securing an ideally quiet testing room.

Critics have raised the objection that the 4-A and the 3-A audiometers are not instruments of precision. It has never been claimed for them that they are of absolute scientific accuracy. If they were, their employment would necessitate the use of a sound-proof room. They were devised specifically for the purpose of detecting appreciable loss of hearing in a practical way among large groups and are of sufficient delicacy to disclose a loss which in the majority of cases would be unrecognized by the older methods. For finer clinical work and research there are other instruments.

With but three exceptions, the statements of persons with a very limited experience, the reporters uniformly expressed great enthusiasm for and appreciation of the advantage of this method of testing acuity of hearing. It has its definite limitations, however, chief of which is the fact that the 4-A audiometer cannot be used to test children who are too young to write to dictation. The 3-A or 5-A instrument, which is used to test individually pupils from 6 years of age and upward, has as yet been used only in a limited way.

In Minneapolis during 1928-1929, efforts were concentrated on this younger group. Tests were made on 17,605 children, of whom only 963, or 5.41 per cent, showed loss of hearing equivalent to six sensation units or more. This indicates a smaller incidence of loss of hearing among these younger children than was found among the older groups. (The figures are 6.13 and 5.41 per cent, respectively.)

To obtain further clinical information, the questionnaire or history as originally given on the chart written by the pupil was supplemented by the addition of the four following questions:

Have you had your tonsils and adenoids removed?
Is any member of your family hard of hearing?
Have you had a mastoid operation?
Have you a cold now?

The last question was regarded in many ways as the most important. The advantage of possessing this added knowledge to those in charge of the health of the school child is obvious.

During the past three years there have been made in the Minneapolis public schools more than 67,000 tests of hearing, the results of which have been highly satisfactory.

The one discouraging feature in the work has been the lack of understanding and therefore the lack of cooperation on the part of many of the medical men to whom those children showing defects in hearing are taken by their parents. Their examinations are often too superficial and they frequently fail to report the physical observations. Unfortunately there exists a deep-seated, widespread fallacy, the inheritance of the past, that little or nothing can be done to prevent deafness. There is a decided need for wider dissemination of information. Textbooks need revision, and lectures to undergraduates in medicine need to be expanded to include the latest knowledge regarding prevention of deafness and conservation of hearing.

The periodic testing of the hearing acuity is only the initial step in any effort toward prevention of deafness. To make it effective there is required the consistent and constant medical follow-up of all patients found to have an appreciable loss before it becomes a handicap. This is distinctly a problem in preventive medicine and for its solution the public looks with confidence to the medical man, especially to the otolaryngologist.

Owing to obstacles inherent in the problem, particularly the inaccessibility of the ear for purpose of research, examination and treatment, specific efforts toward preventing deafness and conserving the hearing have yielded only meager results. Compared with what has been done in other fields, such as the prevention of blindness, tuberculosis and cancer, the record of accomplishment in this problem is not one which can be pointed to with great pride. To me it would seem that the time is now ripe for otolaryngologists to atone for their past record of seeming indifference and partial failure by putting forth larger efforts toward the prevention of deafness through the utilization of the knowledge which they now possess and are rapidly increasing.

All the national otologic societies have committees, variously named, on the problems of the hard of hearing, such as the Committee on the Adult Deaf and the

Hard of Hearing Child of this section, and the Committee on the Hard of Hearing of the American Academy of Ophthalmology and Otolaryngology. The sum total of their activities would be greatly increased could their efforts be defined and coordinated, the methods of procedure in attacking the problems standardized and a vigorous, well organized campaign of education inaugurated.

In my opinion, this could be best accomplished through a national intersociety committee, composed of a few deeply interested men representing each of the four national societies composed of otolaryngologists, as well as the American Federation of Organizations for the Hard of Hearing, the National Research Council, the National Educational Association, the American Public Health Association, the American Child Health Association, the National Parent-Teacher Association and the American Association of School Physicians.

From my study of the situation, I feel justified in suggesting that it would be rendering a distinctive public service if at this time the American Medical Association, because of its prominence and wide influence, the perfection of its organization and its fine record for leadership in promoting health measures was to take the initiative in the formation of such a committee through its Section on Laryngology, Otology and Rhinology by instructing its chairman to appoint a committee of interested members, not to exceed three, to invite the other organizations mentioned to participate in the formation of a national committee on the prevention of deafness.

CONCLUSIONS

1. The periodic testing of the hearing acuity of school children with the audiometer, by revealing the early loss of hearing, is at the present time the most effective means of initiating measures for the prevention of deafness and the conservation of hearing among school children.

2. The greatest need of the movement, now well under way, is the interest, active cooperation and leadership of the physician, especially the otolaryngologist.

3. The movement would be greatly expedited by the inauguration of a well directed campaign of publicity calling attention to the value of periodic hearing tests and to the possibilities of the prevention of deafness.

910 Donaldson Building.

ABSTRACT OF DISCUSSION

DR. THOMAS J. HARRIS, New York: The League for the Hard of Hearing is doing magnificent work. Every community of any size in this country in which there is an otolaryngologist should take up this work and carry it on. We should assist in this great problem, not of the cure of deafness so much as the prevention of deafness. The American Otological Society is taking a leading interest in it. It has raised an endowment fund of $500,000, the income from which is to be devoted to work such as this.

DR. WENDELL C. PHILLIPS, New York: Those who have kept watch of the trend of events will know something of my interest in the American Federation of Organizations for the Hard of Hearing, which I had the honor to organize because I saw what was being accomplished by one local league. At that time there were eight or ten organizations, and it seemed to me that we ought to support them and combine the work of the otologist, the social worker and, especially, the teacher. The phonograph audiometer came into existence because the New York League for the Hard of Hearing demonstrated the necessity of examining school children in large number. Then we took it to a convention of the American Federation and told what could be done. But for the American Federation of Organizations for the Hard of Hearing there would not be from 500,000 to a million school children examined this year. A wonderful work has been done by this organization. Otologists are interested and we are forcing school boards to see whether there are defects in the hearing of the children. My final appeal is this: Get behind your local league for the hard of hearing. Otologic support is the most important; get the matter before the school boards; they want you to. It will also be found that these local leagues for the hard of hearing will be of immense service to otologists in the handling of their patients.

DR. JOHN F. BARNHILL, Miami Beach, Fla.: Twenty-five years ago I had the honor of presiding over this section. My chairman's address was devoted to the subject on which Dr. Newhart has just spoken. I believe we have made commendable strides in preventing deafness during this quarter century. That statement is not easy to prove, but those who have practiced otology during this period and have noted accurately the amount of deafness then and now will bear me out in the assertion that progress has been made. Infection entering the middle ear must still be regarded as the chief cause of middle ear disease. The ear of the new-born is practically sterile and will remain so in most instances provided the environment of the middle ear, the nose and the nasopharynx are normal. The chief interest in preventing deafness often lies, therefore, in securing a normal nose and throat. Outside influences are also important as predisposing causes of ear disease. Hence if the otologist provides a healthy nose and throat for the child at an early age, secures for him a plentiful balanced diet and provides pure air and abundant sunshine, the chief aims of prophylaxis will be accomplished. It must be recognized that the ear is especially sensitive to rapid permanent impairment, and that therefore to be most effective preventive measures or treatment must be given early. An aural disorder that is easily cured at the beginning is often hopelessly incurable next month or next year. It is for these reasons that the work carried on by Dr. Newhart and his committee is especially helpful. By means of the audiometer and other instruments of precision, the defects of the child are discovered at the only period of its life when advice or treatment is most helpful.

DR. AUSTIN A. HAYDEN, Chicago: I want to emphasize what Dr. Newhart said to the effect that if we, the ones who should sponsor this work, do not do so, the physician will be replaced by the osteopath and those of various cults who will eagerly grasp this opportunity to introduce themselves further into the healing art. The problem is really a tremendous one. There are probably five million—some say ten million—people of all ages in the United States with defective hearing—5 per cent of the entire population. These people look to us for leadership, and if we fail, then they will either create means themselves or look to some other organized body. I predict that within ten years the hearing test will be quite as standard for industry as the vision test is today. I hope that before that time the otologists of the country will have placed routine hearing examinations on the firm foundation on which routine periodic health examinations are established today, and until that is done, our duty has not been fulfilled. I would urge otologists to become interested in their local leagues for the hard of hearing. We should do whatever they ask us to do, provided it is consistent with medical ethics and with good otologic practice. Two years ago I spoke to the national organization. I made an appeal that they should not lend us their ears but will us their ears; that they make provision by will that the American Otological Society shall have their ears after death. I was afraid that a proposition of that sort might meet with unfavorable consideration, but instead of that, and as showing the interest these people take in their own condition, I received most gracious and friendly letters making such bequests after that meeting. It will be seen that they are keenly interested in the subject, and I hope that we shall all manifest the same interest and assume the leadership as we have opportunity.

DR. PHILIP C. MEANS, Santa Barbara, Calif.: Santa Barbara has a population of less than 45,000. Two years ago it was suggested that the school physician, who is a very good pediatrician, have one of these instruments for examining school

children. At first I was doubtful about it, as I had not seen any of this work, but the more I studied it, the more I realized its value. Fortunately, if a thing is proved to be of value we can get the money for it. The next thing was to educate the superintendent and the board of education, of which I was the chairman. We had one of these instruments brought in one evening, with head pieces, so that all the members of the board could try it and see how it worked, and it showed some of them that they had one ear deteriorating and did not know it. Unfortunately, I have no statistics as to what resulted from its use, but it has brought to the atteniton of the school physician, school nurse, teachers and parents minor defects—minor degrees of deafness that they did not know about before. And when the report goes back to the parents that Willie has 15 per cent deafness and it is advisable to have him examined as to the cause, and to remedy it, if possible, it means a good deal more than if the teacher met Willie's mother on the street and said, "Willie seems to be deaf; you had better have it looked into." Removing anything that is producing deafness in the early stages is better than to wait until Willie is so deaf that his mother has to tell him five times to do anything. We also have an excellent teacher of lip-reading who is doing good work in night school as well as with a few children.

DR. FRANK H. RODIN, San Francisco: The San Francisco Board of Health has just completed a hearing survey, with the phonograph audiometer, of all school children from the fourth grade through junior high school. All told, 36,191 children were tested and on the retest 3,421 had a loss of 9 or more sensation units in one or both ears. This is 9.5 per cent of the children tested. These children were examined by the board of health otologist, and 1,073 notification cards were sent to the parents calling attention to the defects of their children. The examination was conducted at school. The ears were examined with an electric otoscope and an inspection of the mouth was made. Correctable defects were found as follows: 355 had large and infected tonsils; 185, discharging ears; 180, impacted cerumen in one ear; 114, impacted cerumen in both ears, and nineteen nose troubles. The total number of defects was 853. Four hundred and forty-one children had such an impairment of hearing that they were referred for lip-reading instruction. This is 1.2 per cent of the children tested, and 12.8 per cent of those having a loss of 9 or more sensation units in one or both ears. This survey took two years to complete. No other method than the use of the phonograph audiometer could have made possible such a systematic examination of 36,191 children in such a short period with one technician and an otologist.

DR. JOSEPH C. BECK, Chicago: The Chicago league, which is one of the oldest leagues for the hard of hearing, and over which I have the honor of presiding, is a very active league outside its own local field. Last year, through a motion made by Dr. Hayden and carried unanimously, every member of the Chicago Otological Society was made a member of the American Federation of Organizations for the Hard of Hearing. That is something that we can all do, and it will help the league tremendously. Through the efforts of Dr. Norval Pierce a number of years ago, and the work of Dr. John Theobald, it is possible now to get statistics showing the work that can be done in the schools and that is being carried on in this respect. Dr. John Theobald, who is associated with Dr. Pierce and myself at the Research Hospital in connection with the University of Illinois, has weekly clinics on reexamination. After the children have been examined in the schools, they are brought to the institution, where they are examined more in detail, and the result of that work has been marvelous.

DR. BURT R. SHURLY, Detroit: I should like to know what Dr. Newhart considers the legitimate amount of error in the personal equation and the machine used in testing.

DR. HORACE NEWHART, Minneapolis: There is not time to answer specifically the points brought out by the discussers, but, answering Dr. Shurly first, I may say that the work is yet in its infancy and definite figures are not available. Variations are due to climatic and seasonal changes, to differences in methods of application and to different standards chosen, and also to the amount of noise present at the time of making the tests. Many of the tests prove to be tests of intelligence, and they also reveal the amount of noise prevailing in the room. Any laboratory method is accepted if it is of sufficient accuracy for the purpose for which it is intended. I know of no method of group testing which for accuracy compares with the one used at present in testing the hearing of school children. Dr. Rodin is to be commended for the extensive work done in San Francisco. I am fully in accord with Dr. Barnhill's statement that great progress has been made during the past twenty-five years in the prevention of deafness, but this has come as a result of better practice in the field of rhinology and otolaryngology rather than as the direct result of specific efforts in deafness prevention. One point was suggested in the report of the chairman of the Committee on the Adult Deaf, and that was the matter of legislation to compel periodic hearing tests among school children. This has been attempted in several states, but it seems altogether premature to seek legislation of this sort until the public is better informed on the subject. It must come eventually through intelligent interest on the part of the public after a real demand has been created. As to the application of the methods referred to, I would state that, with modifications, the same methods may be employed in the country schools with even greater benefit than in the city. Recent surveys show a greater incidence of hearing loss among children of rural communities, where the practice of school hygiene has not attained the high standards of the city schools.

THE ELECTROCARDIOGRAM IN THE ACUTE INFECTIONS*

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AND
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DENVER

Rheumatic infection is recognized as the most common etiologic factor in the forms of heart disease encountered in childhood and early adult life, although the symptoms of heart involvement at the time of the acute infection are often so slight as almost to escape detection. These recognized facts have led to the slogan, "The prevention of heart disease in children is the prevention of rheumatic infection." While this by and large is true and because the prevalence of rheumatic infection in childhood offers a ready means of attack, we wish to emphasize particularly in this paper some of the other common etiologic factors in infectious heart disease affecting both the child and the adult heart, and to point out the relative frequency of this occurrence; and finally that, as the rheumatic child is to be considered a potential heart patient, the child or adult who has just passed through many of the other acute infections is with like propriety to be considered a candidate for some form of heart involvement. At the head of this list are the influenzal infections, influenzal sinusitis, influenzal throat infections and the "common colds." Allbutt [1] says: "After an infection as mild as a 'common cold,' more commonly after an influenza, the patient has no warning that his convalescence is incomplete until he engages in some effort. Without any clinical manifestations his heart has become the seat of occult disease—our only guide is crude experience; we have no criterion."

But we believe that there are certain criteria which will frequently indicate the presence of this "occult disease," and it is our purpose in this paper to present

* From the Department of Medicine, University of Colorado School of Medicine.

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1. Allbutt, Clifford: Diseases of the Arteries Including Angina Pectoris **2**.

certain evidence obtained early and often solely from the electrocardiogram, for of signs in these cases there are often none or, perhaps, besides a slight irregularity, there is a slightly muffled heart sound, but these will not be sufficient to state with certainty that the heart has suffered definite injury. By means of the electrocardiogram the heart may be subjected to the "acid test" and this will frequently furnish the sole discoverable signs of heart disease.

Pathologic evidence of the effect of influenzal infection on the heart is not lacking. Hamburger [2] reports involvement of the auricle and conductive system in influenza and shows that the effect may vary from the extensive damage resulting in the early death to the transient changes noted during the acute illness or the postinfluenzal myocardial changes. These occurring in the course of or following convalescence will most frequently be overlooked. Taylor [3] demonstrated at autopsy an influenzal pericarditis with a culture of the influenza bacillus. Hubert [4] discusses at length the harm to the circulatory system in the course of and following influenza and notes both infectious and toxic effects. He notes, as does Hyman,[5] that there is no relation between the severity of the acute infection and the severity of the complications; on the contrary, these appear to follow the lightest forms—an observation in line with our own—for in our series some of the most serious disturbances have followed apparently mild infections. Hyman suggests the need of electrocardiographic control in all of this type of cases. Certainly our series justifies this rule.

Concerning other types of infections than that ordinarily grouped as influenza there are numerous reports. Hansen [6] cites a 23-year old patient who, following tonsillitis, showed an aberrant ventricular complex without cardiac symptoms and without clinical evidence of heart disease at the time.

This paper is not concerned with cardiac changes occurring in the course of or following diphtheria, scarlet fever or rheumatic fever, since none of these are included in the series, but in all there is ample evidence of the need of the cardiographic control. Swift [7] observed electrocardiographic evidence of some degree of functional cardiac disturbance in more than 90 per cent of a series of eighty-one patients suffering from rheumatic fever. Reid and Kenway [8] noted that these electrocardiographic changes were often the first and sole evidence of cardiac involvement. Hoskin [9] noted that five of sixteen patients with diphtheria discharged as convalescent showed "slurring of the Q-R-S complex" and concluded that all cases should be investigated by the electrocardiogram before the patients are discharged. Loth [10] states that death is due to myocardial or conduction tract injury plus peripheral vasomotor disturbance. There is a definite inflammatory reaction (true myocarditis) only exceptionally demonstrated at autopsy. Perhaps the most certain means of demonstration of this inflammatory reaction is the electrocardiogram. Jones and White,[11] in a recent article, review the previous literature on the effect of diphtheria on the heart, in which the opinion was mainly expressed that a permanent effect on the heart often followed diphtheria. The authors cite two cases of heart-block developing in the course of this infection and persisting during the total period of observation—in one case nineteen years. On the other hand, a study of 100 young people who had had diphtheria from five to eight years prior to examination failed to show any evidence of appreciable chronic effect of diphtheria on the heart. In view of the existing literature and knowledge obtained from the study of other acute infections, one may well raise the question whether a study of these patients in the immediately postconvalescent period might not have disclosed some important heart muscle or conduction tract changes, which information might have been employed to the patient's benefit in the protection from undue heart strain during this period.

Experimental evidence of the effect of myocardial injury on the electrocardiogram preceded clinical evidence of the condition by many years. Eppinger and Rothberger, many years ago, and Otto,[12] recently, showed that ligation of the coronary arteries was followed by muscle changes in the affected portions, which in turn were followed by changes in the T wave, and that there was no relation between the degree of alteration of the T wave and the area of the myocardium involved. Our work was concerned only incidentally with T wave changes and no attempt will be made to enter into the already extensive discussion of this complicated phase of electrocardiographic interpretation.

As indicated by the foregoing, we believe that the electrocardiogram furnishes evidence of cardiac disturbance coexistent with, or preceding by an appreciable interval, any and all other signs and symptoms of the heart involvement. That this will not be readily accepted by all we are well aware. Pardee,[13] in his recent monograph, states that "at times these [electrocardiographic signs] will be the only discoverable signs of heart disease." And, again,[14] "Just as the presence of certain murmurs indicates definitely the presence of valvular disease, so does the presence of certain electrocardiographic abnormalities indicate definitely a diseased state of the muscle." At another point he [15] states that "the importance of the record is great, but nevertheless, taken by itself it can never form a sufficient basis for the diagnosis or prognosis." One might compare this to the demonstration of roentgenographic abnormalities or laboratory observations which point toward a pathologic condition. These will usually be sufficient to point the way toward other means of demonstration of the existing pathologic condition or perhaps a careful observation of the patient over a long enough period to establish the diagnosis. In any event, one would not feel justified in discarding roentgenographic evidence of a central lung neoplasm even in the absence of confirmatory physical signs; rather would one feel that his diagnostic acumen was not quite equal to the

2. Hamburger, W. W.: Involvement of Auricle and Conduction Pathways of Heart Following Influenza, Am. J. M. Sc. **160:** 479 (Oct.) 1920.
3. Taylor, Ruth E.: Influenzal Pericarditis, J. A. M. A. **89:** 347-348 (July 30) 1927.
4. Hubert, George: Ueber Grippeschäden am Kreislaufapparat, München. med. Wchnschr. **752:** 1202-1204 (July 13) 1928.
5. Hyman, A. S.: Postinfluenzal Heart Block, M. J. & Record **124:** 698-703 (Dec. 1) 1926.
6. Hansen, Olga S.: The Aberrant Ventricular Complex as an Aid in Prognosis, Am. Heart J. **3:** 712-722 (Aug.) 1928.
7. Swift, H. F.: The Heart in Infection, Am. Heart J. **3:** 629-648 (Aug.) 1928.
8. Reid, W. D., and Kenway, F. L.: The Value of the Electrocardiogram in Acute Rheumatic Fever, New England J. Med. **198:** 177-181 (March 15) 1928.
9. Hoskin, Jenner: The After-Effects of Diphtheria on the Heart, Lancet **1:** 1141-1142 (June 12) 1926.
10. Loth, Mathilde: The Heart in Diphtheria, Arch. Int. Med. **31:** 637-652 (May) 1923.
11. Jones, T. D., and White, P. D.: The Heart After Severe Diphtheria, Am. Heart J. **3:** 190-195 (Dec.) 1927.
12. Otto, H. L.: The Effect of Obstruction of Coronary Arteries on the T-Wave of the Electrocardiogram, Am. Heart J. **4:** 346-350 (Feb.) 1929.
13. Pardee, H. E. B.: Clinical Aspects of the Electrocardiogram, preface.
14. Pardee, H. E. B.: Clinical Aspects of the Electrocardiogram, p. 90.
15. Pardee, H. E. B.: Clinical Aspects of the Electrocardiogram, p. 162.

occasion; so in heart disease or in this form of post-infectious heart disturbance which we are considering, while it may be true that the record "taken by itself can never form a sufficient basis for the diagnosis or prognosis," [15] yet the demonstration of such an abnormality in the record may well serve as a stimulus for repeated clinical observation, exercise tolerance tests and a careful regulation of the regimen for a period sufficient to permit of complete recovery of the heart.

The series of cases included in this report consisted of fifty-five adults and forty-five children, all having or having recently passed through one of the acute infections. A point of prime importance is that none of these were primarily cardiac patients or patients who had had a history of rheumatic fever or any previous evidence of cardiac disturbance—in fact, all known cardiac patients were excluded from this series, only those who had a history clear of cardiac disturbance prior to the acute infection being included. Case 20, previously reported by one of us [16] under the title

TABLE 1.—*Observations in Age Group from Nineteen to Sixty-Two*

No.	Name	Age	Clinical Diagnosis	Electrocardiographic Changes	Cardiac Observations	Comment
1	C. J. L.	36 years	Influenza	$T_{2,3}$ inverted	Negative	No symptoms referable to the heart
2	D. R.	22 years	Influenza	Slight slurring of $R_{1,2,3}$; occasional x-systoles	X-systoles	Complained of shortness of breath on exertion; followed influenza in 1918
3	E. H.	49 years	Influenza	Sinus block	Negative	Heart repeatedly negative previously; influenza in November, February; frequent fainting spells; systolic murmur now present
4	A. W. R.	55 years	Influenza, three attacks	Frequent auricular x-systoles	Sounds of poor quality; blood pressure 105/70; $A_2 = P_2$	Influenza, 1927, followed by dyspnea and cyanosis; June, 1928, influenza followed by dyspnea, cyanosis, edema; influenza, December, 1928, followed by severe dyspnea, cyanosis and palpitation
5	F. C.	36 years	Erysipelas, tonsillitis, adenoma of thyroid	$T_{1,2,3}$ inverted	Negative; rate, 120; blood pressure, 130/50; not enlarged to percussions; no murmurs; sounds of fair qulity	No heart symptoms
6	D. M. C	39 years	Empyema, pneumococcus; duration, one month	$P\text{-}R_{1,2,3} = 0.20$	Sounds of poor quality; regular rhythm; rate, 96; blood pressure, 110/75; roentgen diagnosis, large heart, empyema	No cardiac symptoms
7	M. H.	45 years	Lobar pneumonia, sinusitis; had previous attack of pneumonia nine months before	Bizarre R_2	Negative; blood pressure, 106/60	No heart symptoms
8	E. R.	19 years	Anterior poliomyelitis	$P\text{-}R_{2,3} = 0.21$ and in a week returned to normal	Negative	While in hospital patient developed a tachycardia; on electrocardiographic examination showed a conduction disturbance
9	F. S.	22 years	Chronic tonsillitis; acute otitis media, acute mastoiditis	$P\text{-}R_{1,2} = 0.20$; returned to 0.15 to 0.18 seconds after several months	Faint systolic murmur and doubtful diastolic; mitral disease according to roentgenogram	No cardiac symptoms
10	J. S.	62 years	Influenza; bronchitis	$P\text{-}R_1 = 0.20$; $P\text{-}R_2 = 0.22$; $P\text{-}R_3 = 0.20$	Negative	No cardiac symptoms
11	F. W.	45 years	Unresolved pneumonia; chronic sinusitis	$T_{1,2,3}$ inverted	Negative; blood pressure, 115/70	No cardiac symptoms
12	T. E.	23 years	Unresolved pneumonia; acute tonsillitis; acute pharyngitis	$P\text{-}R_{2,3} = 0.20$	Negative	No cardiac symptoms
13	P. W.	48 years	Influenza	$P\text{-}R_{1,2,3} = 0.20$	Not enlarged; no murmurs	No cardiac symptoms
14	A. H.	25 years	Lobar pneumonia	$R_{2,3}$ slurred	Heart not enlarged; no murmurs; sounds of good qualtiy	No cardiac symptoms
15	J. O. C.	28 years	Influenza; acute myocarditis	$P\text{-}R_{2,3} = 0.20$	Heart enlarged to right; systolic and diastolic murmurs at apex; left border 2 cm. outside nipple line	No cardiac symptoms
16	L. H. B.	45 years	Influenza	T_1 inverted; four months later, left axis deviation	Muffled heart sounds, ticktack quality; pronounced drop in blood pressure	Electrocardiogram five years before was normal; pronounced symptoms of coronary thrombosis out of clear sky one week after influenza
17	J. A.	27 years	Influenza	R_1 = slurred and low; R_2 = low; R_3 = low, bizarre and inverted	Negative	No cardiac symptoms
18	J. F.	58 years	Empyema	X-systole; R_1 = notched and low; R_3 = slurred	Negative	No symptoms; notching and slurring of R waves more pronounced in electrocardiograms taken two months later *
19	C. P. C.	26 years	Influenza	$R_1 = 5$; $R_2 = 5$; $S_2 = 7$; $R_3 = 1$; $S_3 = 5$	Negative	Electrocardiogram taken four months later showed a more pronounced left preponderance; there was a doubling of the first sound for several weeks following attack; no heart symptoms
20	H. P.	30 years	Influenza, acute bronchitis	$P\text{-}R_1 = 0.56$; $P\text{-}R_2 = 0.56$; $P\text{-}R_3 = 0.56$	Systolic murmur at one time and irregularity in rhythm; later the murmur disappeared and the rhythm became normal	Later electrocardiograms showed a normal P-R interval; no cardiac symptoms

* There were no heart symptoms; the heart observations were negative until one week before patient's death, when the heart sounds were weak and the rhythm irregular.

16. Burnett, C. T.: Occult Rheumatism, Colorado Med. **25**: 212-224 (June) 1928.

"Occult Rheumatism," at no time showed any signs of joint involvement and gave no history of antecedent rheumatic infection. As already stated, no cases of diphtheria or scarlet fever were included.

The electrocardiographic standards employed were as follows:

A P-R interval of more than 0.20 second was considered a sign of conduction disturbance, always in a child and usually in an adult unless the rate was below 90.

In the R wave, notching or slurring in more than one lead or low voltage (less than 8 mm.) in more than one lead was considered abnormal. The latter may indicate only a nutritional disturbance of a transient nature. T wave changes affecting only lead 3 were not considered.

ADULT CASES

There were fifty-five adults who were subjected to electrocardiographic examination in the course of or shortly following an acute infection; of this group of

TABLE 2.—*Observations in Children's Series*

No.	Name and Age	Clinical Diagnosis	Electrocardiographic Changes	Cardiac Observations	Comment
1	J. F. 7 yr.	Empyema	Flat T_2; inverted T_3	Negative	No heart symptoms
2	M. H. 6 yr.	Empyema	Flat T_2	Negative	No heart symptoms
3	G. E. 6 yr.	Pneumonia	$P\text{-}R_{1,2,3}$ = 0.24	Negative	No heart symptoms
4	H. G. 8 yr.	Tuberculous peritonitis	$P\text{-}R_{1,2,3}$ = 0.22 to 0.24	While in hospital developed systolic murmur at apex	No heart symptoms
5	J. E. 9 mo.	Broncho-pneumonia; frequent colds; pertussis	$P\text{-}R_{1,2}$ = 0.20	Negative	Patient was admitted to hospital with diagnosis of pertussis and contracted the illnesses recorded while in the hospital
6	C. C. 11 yr.	Influenza	R_1 = S; R_2 = 6 slurred; R_3 = 3; S_2 = S	Negative	No heart symptoms
7	F. R. 5 yr.	Influenza, 1926; whooping cough, 1928	Slight slurring R_1 and R_2; R_3 bizarre	Faint apical systolic murmur	No heart symptoms
8	J. R. 3 yr.	Influenza, 1928; whooping cough, 1928	Slight slurring R_2 and R_3	Negative	No heart symptoms

fifty-five there were twenty who showed what we interpret as definitely electrocardiographic changes. The ages ranged from 19 to 62.

The changes noted in these twenty patients were a P-R interval of 0.20 second or more in eight, and an inversion of the T wave in one or more leads, in four. Those in which T_3 alone was inverted were not included.

Five demonstrated slurring or bizarre R wave or low voltage in more than one lead.

Three showed premature beats. In two of these patients, premature beats were associated with other electrocardiographic changes. The remaining one exhibited frequent auricular premature beats.

A sinus block appeared in one, but this was not present in the electrocardiogram taken two months later.

Eleven patients in this series had influenza preceding the cardiac changes; six had pneumonia or pneumococcus empyema; one had tonsillitis and erysipelas; one had chronic tonsillitis, acute otitis media and acute mastoiditis; one had anterior poliomyelitis.

In eight of the twenty cases which presented electrocardiographic changes, later electrocardiograms were taken. Of these only one revealed constant changes; namely, slurring and low voltage of the R waves at a period three months after the first electrocardiogram and about the same time after the infection.

In the remaining seven, changes either in the direction of normal or toward more pronounced abnor-

TABLE 3.—*Summary of Electrocardiographic Observations*

	Clinical Diagnosis	P-R Interval 0.20 Sec. or More	T Wave Changes*	Slurring, Bizarre R Waves or Low Voltage	Premature Beats	Sinus Block
	Adult Series					
11	Influenza	8	4 (Inversion in one or more leads)	5	3	1
6	Pneumonia or pnemococcus empyema					
1	Tonsillitis and erysipelas					
1	Chronic tonsillitis, acute otitis media, acute mastoiditis					
1	Anterior poliomyelitis					
	Child Series					
3	Influenza	3	2 (Iso-electric waves in lead II)	3		
3	Lobar pneumonia, empyema					
1	Bronchopneumonia					
1	Tuberculous peritonitis					

* Changes in T alone were not included.

mality occurred. Three who had disclosed prolonged P-R intervals showed after a period of about four months normal P-R intervals. Two showed abnormalities of the R wave, of whom one presented these abnormalities more pronounced two months later, while the other had a more pronounced left axis deviation after four months. A sinus block was found in one patient in the course of an acute influenza which disappeared four months later. Regarding the clinical observations in this group, five showed definite symptoms, fifteen did not at any time present symptoms of heart disturbance, five showed definite signs of heart disease, two had doubtful signs, and in thirteen no signs were obtained on physical examination, the only evidence being that furnished by the electrocardiogram.

CHILD GROUP

There were forty-five children who were subjected to electrocardiographic examination in the course of or shortly following an acute infection; of this group of forty-five there were eight who showed definite electrocardiographic changes. The ages of this group ranged from nine months to 11 years. The changes noted in this group of eight children were a P-R interval of

TABLE 4.—*Summary of Clinical Observations*

	Definite Symptoms	No Symptoms	Definite Signs	No Signs	Doubtful Signs
Adult series.....	5	15	5	13	2
Child series.....	..	..	..	6	2 (Apical systolic murmur)

0.20 second or more in three; slurring or bizarre R waves in more than one lead in three and iso-electric T waves in lead II in two. Changes in T_3 alone were not included. Five gave evidence of slight axis deviation, but this was not considered sufficient to warrant inclusion in this series, since the normal degree of right deviation at this age period is not established, and in the case of those tending toward left deviation this was not great enough to be significant.

At this age period cardiac symptoms are not commonly noted and none of these patients presented any such symptoms. The heart observations were entirely negative in six, and in two apical systolic murmurs were noted; otherwise the heart observations aside from those obtained from the electrocardiogram were entirely negative.

This group of eight cases included three of influenza, three of lobar pneumonia or empyema, one of bronchopneumonia and one of tuberculous peritonitis.

In reviewing this series of twenty-eight patients who showed electrocardiographic evidences of heart disturbance, we recognize a possible error save in one case. With this exception, no preceding curves were available for comparison. There is, of course, a possibility that the changes noted were normal for that individual, in certain instances, or represented the residual of a former heart insult. This could be determined only by records taken on persons in health. We feel that we do not know sufficiently well the normal for the infant and the child, and until an adequate series of observations from birth to adult life in the same individual is available, this question cannot be answered accurately. This type of work we have now under way, but obviously no conclusions can be drawn at this moment. Practically all of the information we have at the present time regarding the normal electrocardiogram in childhood is based on the comparison of curves taken from different children at different ages. However, in both of these groups we have arrived at our conclusions through the use of the commonly accepted standards for each group.

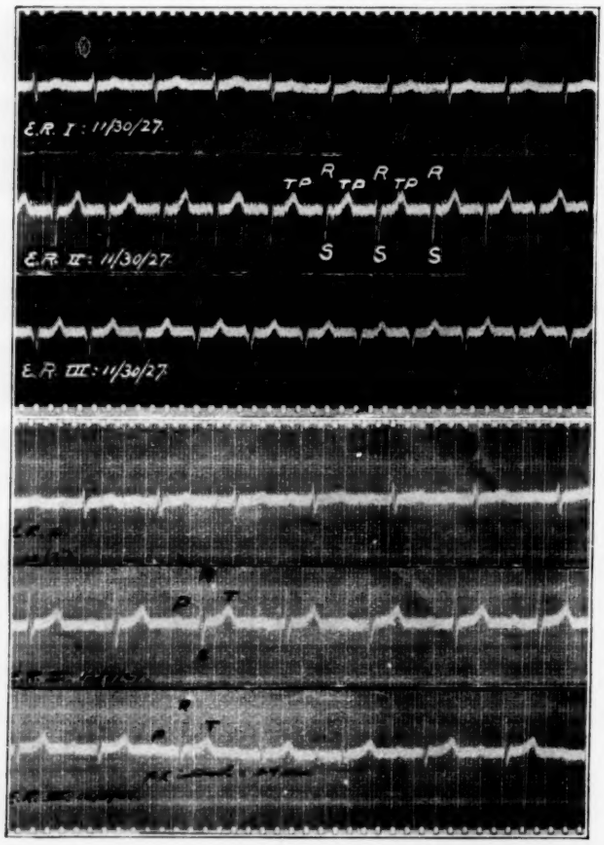

Fig. 1 (case 8).—Tracings, Nov. 30 (above) and Dec. 8 (below), 1927.

That many of these changes may be transient we recognize; in certain instances we have so demonstrated, but we do not feel that this limits the value of the finding, for it may be that in this class of transient disturbance most may be accomplished in the prevention of fixed and permanent heart disease by timely protection of a toxic heart muscle through adequate rest. A somewhat analogous condition is noted in myxedema. Fahr [17] showed extensive changes in the Q-R-S-T

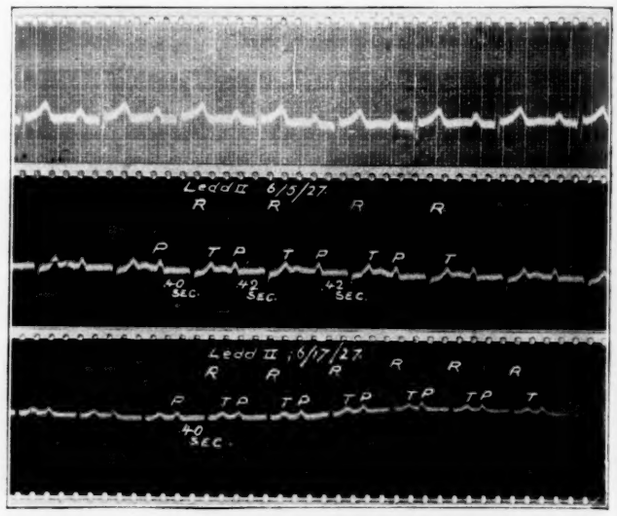

Fig. 2 (case 20).—Tracing, June 17, 1927.

complex occurring in myxedema, often clearing promptly under thyroid extract. Hepburn and Graham [18] show electrocardiographic changes in diabetes which disappear with insulin therapy. They conclude, "The abnormal electrocardiograms . . . have resulted from the effects on the myocardium of disease of the coronary arteries." They also say, "In diabetes mellitus the premature development of vascular changes is the result of *infection* acting in the presence of the abnormal metabolism of diabetes mellitus," because of the lack of resistance to infection commonly noted in this condition. Swift [7] describes in rheumatism, in addition to the proliferative tissue reaction (submiliary nodule of Aschoff), an exudative response which may in part explain the transient electrocardiographic evidences. It may well be that such exudative reactions take place in infections other than rheumatic fever. White [19] considers the effects of influenzal infections to be transient and speaks of them as temporary poisoning, advancing the opinion that symptoms are due to effort syndrome or irritable heart rather than to organic changes; however, he considers the possibility of coexistent structural and functional disease in any postinfluenzal condition.

ILLUSTRATIVE CASES

CASE 8.—E. R., a youth, aged 19, was admitted Aug. 7, 1927, because of soreness and weakness in the back and legs, of two days' duration, and inability to walk or stand, of one day's duration. The condition was diagnosed as either a toxic transverse myelitis or anterior poliomyelitis. Under treatment the paraplegia improved.

November 29, the patient developed a tachycardia which was proved to be associated with a partial block (prolonged P-R interval).

17. Fahr, G.: Myxedema Heart, Am. Heart J. **3**: 14-30 (Oct.) 1927.
18. Hepburn, J., and Graham, Duncan: An Electrocardiographic Study on One Hundred and Twenty-Three Cases of Diabetes Mellitus, Am. J. M. Sc. **176**: 782-789 (Dec.) 1928.
19. White, P. D.: Heart in Infectious Disease, Am. J. M. Sc. **163**: 355 (March) 1922.

December 8, the heart rate was normal and there was a normal electrocardiographic tracing. The heart at the time of admission and throughout observation appeared normal on physical examination.

CASE 20.—H. P., a man, aged 30, was admitted May 19, 1927, because of slight malaise, cough and elevation of temperature, occurring thirteen days after a tonsillectomy under ether anesthesia. During the period of observation the only sign noted was the presence of a small bronchopneumonic patch under each scapula, observed only three or four days. At no time was there any clinical evidence of extension of the infection to other tissues.

At the time of the tonsillectomy the heart was observed to be normal. During the acute infection a transient systolic murmur, not transmitted, appeared at the apex. The rhythm was regular throughout, but on the eighth day and after three days of normal temperature the patient was found to have a pulse rate of 50 and was referred for electrocardiographic investigation. The only abnormalities noted were an increase in the P-R intervals, these varying from 0.36 to 1 second (normal not over 0.2 second). The murmur noted formerly had disappeared and there were no symptoms referable to the heart. Electrocardiograms were taken several times during the next two weeks showing P-R intervals varying from 0.18 to 0.48 second. Later electrocardiograms were normal. A diagnosis of influenza and "occult rheumatism" was made.[16]

CASE 16.—L. H. B., a woman, aged 45, whose past history was irrelevant and who did not give any history of heart disease, late in November, 1928, had a mild influenza with an apparently simple antrum infection which was drained on the third day with results that appeared satisfactory. Five days following this she developed a typical coronary thrombosis. An electrocardiogram taken Jan. 12, 1929, showed inversion of T_1 without other changes (an electrocardiogram in 1924 was

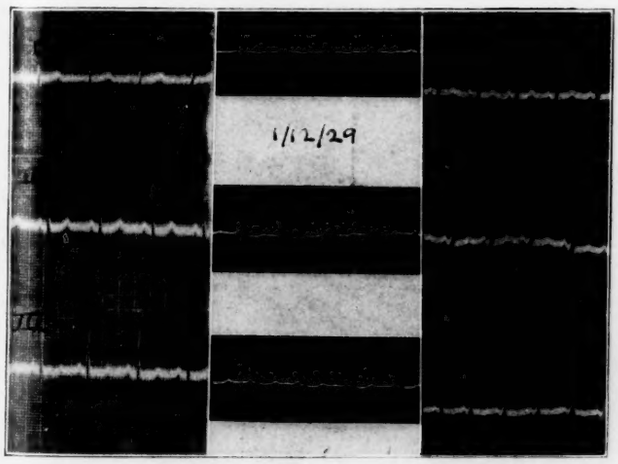

Fig. 3 (case 16).—Tracings, March 31, 1924, Jan. 12, 1929, and May 1, 1929.

normal in form). One taken May 1, showed that the T waves had returned to normal but there was definite left axis deviation; otherwise recovery at this date appears to be complete.

SUMMARY

We have presented a series of 100 patients who, following some acute infection, were especially studied with reference to possible heart injury. None of these had shown any signs or symptoms of heart diseases prior to the recent infection. No cases of scarlet fever, diphtheria or frank rheumatism were included and none of these patients gave a history of rheumatic fever; twenty-eight of these furnished significant changes in the electrocardiogram. In twenty of these, symptoms and other signs of heart disease were lacking or confusing, and in only three of the twenty-eight were either heart signs or symptoms sufficient to indicate heart injury.

Pathologic and clinical evidence support the view that in the course of many types of acute infection the heart tissues are injured. Clinical recognition of this injury is often difficult or impossible. The electrocardiogram offers a means of diagnosis in a sufficiently large proportion of these cases to render its more general employment worth while.

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ABSTRACT OF DISCUSSION

DR. J. MARION READ, San Francisco: It has long been my opinion that the electrocardiogram is as helpful in prognosis as it is in diagnosis. And in this connection, when acute infections are being treated, it should be used more than it is. This point is well illustrated by two patients that I saw some years ago. One was a woman, aged 48, who had a blood pressure of 180 systolic and 80 diastolic. The pulse rate was 40 to 44 a minute. The electrocardiogram demonstrated a complete heart block. At the age of 6 she had had diphtheria. In her early teens a very slow pulse rate was observed by several physicians whom she consulted for irrelevant matters. I concluded that she had had a complete heart block at the age of 6 as a result of diphtheria which had been persistent, but with perfect compensation. Had an electrocardiogram been taken at that time it would have demonstrated that the general myocardium had escaped injury, but she had a serious injury in the conduction bundle, and the prognosis in that case would have been more favorable because we know heart block in itself is not necessarily a fatal disease. The other patient was a man, aged 53, who had pneumonia at 23. He has had heart block for thirty years. Last year he underwent nephrectomy without any untoward events. Had electrocardiograms been taken in his case (of course they were not being taken very generally thirty years ago) they would have demonstrated also that the man had no general myocardial injury but did have a severe injury to the conduction system alone.

DR. R. C. LOGEFEIL, Minneapolis: I have been interested in the use of the electrocardiograph in diagnosis for several years. The first case which brought this to my attention occurred several years ago, when the electrocardiograph was of value not only in prognosis but especially in diagnosis. A woman aborted and developed pneumonia about four or five days later. On about the seventh day, two days after the crisis, while straining on a bed pan, she became suddenly very short of breath and somewhat cyanotic. It looked as if she might die. She had complained of pains in her left leg that morning. A medical consultant was called in and a diagnosis of pulmonary embolism was made. The electrocardiogram showed a marked inversion of the T waves in all leads. Although no previous electrocardiogram had been taken in this case, the fact that after six or eight weeks it became normal was sufficient evidence to show that the condition was due to the toxemia of the heart muscle from the pneumonia. No further evidence of phlebitis appeared. The fact that the authors did not have readings made in these cases before the onset of the infectious disease does not decrease the value of their observations in my opinion, because they found that in those cases that showed abnormalities in the electrocardiogram, after observation over a period of time when toxins from the infections had disappeared, the electrocardiogram became normal. Dr. Nathanson of Minneapolis has done some interesting experimental work and has reported a series of cases showing the effects of diphtheria toxin on the myocardium. His observations, along with those of the authors, would indicate that these toxins in infectious diseases affect the myocardium (which is evidenced by inversion of the T wave), as well as the conducting mechanism. I believe we should consider these observations more seriously, and in infectious disease in which there is any question of myocardial or heart involvement of any kind have an electrocardiogram taken. It will be of value not only in diagnosis but also in prognosis.

DR. C. T. BURNETT, Denver: I know of no way to distinguish serious from simple changes. It is well known that in these cases of coronary occlusion, whether experimental or accidental, the degree of disturbance in the electrocardiogram

is not an index of the area of myocardium involved. I want to stress again what I believe is the need for former electrocardiograms for comparison. In this series of 100 cases we have excluded quite a number that might have increased our twenty-eight to a higher figure, because the changes were so slight that we felt we were not warranted in including them. I want to stress the desirability of a study of children from the earliest period. Sir James Mackenzie, in his later years, left his practice, went up to St. Andrews, and organized the institution for the study of the earliest manifestations of disease. One would not like to criticize anything that such an eminent worker did, but it seems to me that he did not start quite early enough. He was working with adults. I believe we should start some of these studies with children. In Denver, in connection with the Child Research Council, we are attempting to do exactly this, not only in heart work but in pulmonary and other work. We are actually getting cardiograms and heart studies from every standpoint, and are attempting to carry a complete vascular system study through until adult life. As I said, no one can report on that at the present time. Finally, I want to emphasize that these changes do not indicate degree. I do not believe that one can make a prognosis, at least in any considerable number of these patients whom we have presented. They do indicate that there is an injury, perhaps transient, but one that needs attention.

POSTCESAREAN BURSTING OF ABDOMINAL WOUNDS *

D. A. HORNER, M.D.
CHICAGO

As obstetric writers have not considered the subject of bursting wounds, I take this opportunity of placing on record three instances of wound separation or bursting following cesarean section at the Chicago Lying-In Hospital. I hope that their recital and study will be of value to those interested in the newer problems of obstetrics.

REPORT OF CASES

CASE 1.—Mrs. S., a patient of Dr. J. B. De Lee, aged 33, French, a primigravida, (tertipara, two spontaneous abortions) who had had myomectomy several years previously, entered the hospital at term but not in labor with marked dyspnea and cyanosis (medical diagnosis: acute bronchial asthma with marked cardiac decompensation). She was unable to find comfort in horizontal or sitting positions, and was very restless. Her weight was 225 pounds (112 Kg.).

Classic cesarean section was performed under local anesthesia with the patient in a semisitting posture. Great difficulty was encountered during the operation because of the patient's dyspnea, cardiac exhaustion and pulmonary edema. A living baby was obtained, but the mother's life was in the balance throughout. The uterus was closed with three layers of catgut sutures. The peritoneum was closed with a running stitch of catgut, the fascia with interrupted chromic catgut and the skin with silk. Tension sutures of silkworm-catgut included all structures down to the peritoneum.

On the seventh day, because the wound appeared puffy with some inflammation, it was decided to remove the tension sutures (fig. 1). On removal of the second silkworm suture the entire wound parted, exposing several coils of bowel. There was no shock. The wound was immediately resutured with six through and through silkworm sutures. Six hours later the patient had a violent coughing spell which reopened the entire wound and forced several coils of intestine out on the abdomen between the sutures. To make matters worse, urine escaped from wound. The bladder also had ruptured. It was impossible to replace the distended bowel because of the constant dyspneic straining of the patient. The entire protruding mass was then covered with a circular rubber dam, the edges of which were sutured to the skin. Thus a temporary artificial elastic abdominal wall was constructed by De Lee and during straining the intestines found room in the hernia-like rubber pouch. Holes were cut in the rubber to permit the escape of urine and other discharges (fig. 2). From then on marked improvement was shown. The rubber dam was removed on the sixth day following the bursting (fig. 3). It had served its purpose, although the sutures uniting it to the skin had cut through in places. The coils of intestine were found covered by a fibrinous sac which eventually epithelialized. The vesicle fistula closed spontaneously and the patient was up in a wheel chair on the twenty-first day. She left the hospital on the twenty-fifth day following the accident. The wound had healed over, leaving a large hernial sac with an excessively thin covering, mostly epidermis. Two years later, following a repair of the hernia, the patient died.

CASE 2.—Mrs. C., also a patient of Dr. J. B. De Lee, aged 35, Russian, a tertipara, had had two stillbirths previously, the first fetus being macerated and the second dying following the induction of labor and a version for transverse presentation. Uterus bicornis was diagnosed at the time of the second delivery. During her third pregnancy cesarean section was decided on as the most probable way to obtain a living child. She entered the hospital two weeks before term with the fetus again lying transversely. The patient had a chronic bronchitis at the time of admission and coughed a great deal. The thyroid was slightly enlarged, but no definite symptoms of hyperthyroidism were present.

Râles and cough disappeared shortly after admission and with rest in bed. Laparotrachelotomy was performed under local anesthesia with closure in five rows of suture: the peritoneum, muscle, fascia and fat with catgut, and the skin with silk. The patient stood the operation very well, but immediately afterward the cough returned.

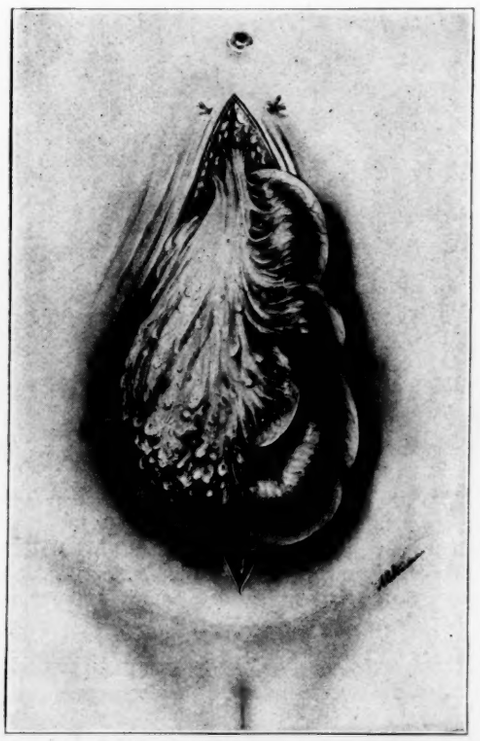

Fig. 1.—Complete dehiscence, showing protrusion of omentum and intestine. Attention is called to adhesions which developed within twenty-four hours.

On the tenth day following section, the stitches were removed. At the lower end of the wound a small mass could be seen. This was thought to be granulation tissue. The wound was dressed, but soon after the patient had a violent coughing spell and stated that she felt the wound give way.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eightieth Annual Session of the American Medical Association, Portland, Ore., July 12, 1929.

Much moisture was present in the dressings. The entire wound lay open under them. The omentum was adherent to the surface all around and loops of intestine protruded through openings torn in it. There was no evidence of infection and no shock.

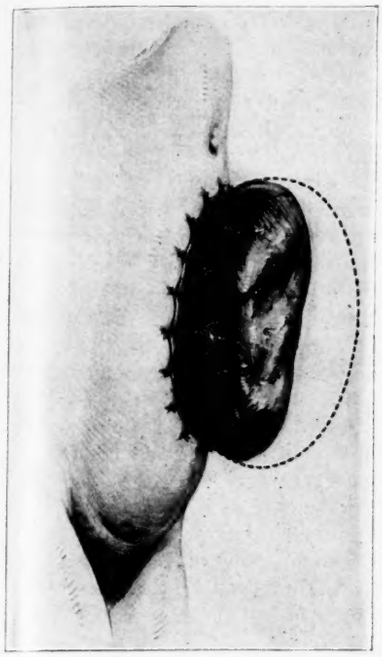

Fig. 2.—Rubber dam sewed over entire mass in case of irreducible protrusion of viscera. Perforations allow escape of discharges. Dotted line shows limits of expansion during straining efforts. (Eisengraber, Munich.)

One and a half hours after the accident, secondary operation was performed under local anesthesia. The omentum was loosened from an extensive attachment to the parietal peritoneum, fascia, fat and skin. Then the fascia was pulled out as well as possible, which was difficult because it was inelastic and retracted. It was discovered that some of the sutures had been torn out of the fascia and also that the fascia had split lengthwise, paralleling the edge of the fascial incision. The openings in the omentum were closed, and intestine and omentum were then easily replaced in the abdominal cavity. The wound was reunited with closely set heavy silkworm figure of eight sutures, and interrupted catgut in the fascia. The patient made an uneventful recovery and was discharged on the twenty-ninth day after cesarean section and the seventeenth day following the secondary repair. The wound had healed by primary intention.

Two years later the patient had a Porro cesarean section at term with no complications.

CASE 3.—Mrs. V., one of my own patients, aged 35, Irish, a primipara, had had pneumonia twenty years before and again nine years before, and osteomyelitis of the left leg thirty years before. Physical examination showed nephritic toxemia and a decompensated heart (aortic regurgitation). The blood pressure was 200 systolic and 70 diastolic. Albumin was 2 plus.

The patient went into labor spontaneously with the head floating. No progress was noted after eight hours of a moderately severe labor. Laparotrachelotomy was performed under local anesthesia with only a few whiffs of nitrous oxide during the delivery of the head. The abdomen was closed as in case 2 with our usual technic of closure. The patient had frequent coughing spells, and on the fourth day, after a very severe paroxysm, she complained of the dressings being wet. They were found to be saturated by a watery discharge coming from a small opening in the center of the incision. The following day there was extensive wound separation with a loop of bowel protruding to the level of and adherent to the edges of the skin incision. There was no shock. Without removal of the patient to the operating room, the bowel was gently freed and the skin drawn over and approximated by sterile adhesive strips which held the wound closed for two days.

The next day, as a result of severe and continued coughing, the intestine again was forced through the wound. Not a single original catgut suture could be found in the wound when it was prepared for secondary suture. In places the omentum and a few coils of intestine were found adherent to the opening. It was impossible to bring the edges together with sutures because of the wide gaping.

With the use of 0.5 per cent procaine hydrochloride, a half inch rubber tube was laid along each side of the abdominal opening and fastened to the abdominal wall by silkworm sutures extending down to the belly of the rectus muscle. The omentum and bowel were gently loosened from their attachment to the wound and protected with petrolatum-covered rubber tissue similar to that used by dentists (fig. 4). Heavy silk was used to pull the tubes together, thus approximating the edges of the wound, the rubber tissue being gently pulled out before the last stitch was tied. The center stitches about the tubings were pulled out after several days, leaving a small gaping of the wound which finally filled in with granulation tissue. The patient recovered without hernia, and was discharged on the forty-third day following section, and the thirty-seventh following bursting of the wound (fig. 5). At the present time, four years later, she has no distress or evidence of hernia.

ETIOLOGY

Spontaneous rupture or bursting of abdominal incisions may be classed as partial or complete. The first and most common group involves the layers from within outward, not including the skin, and causes postoperative hernia, while the second involves all the layers, so that the abdomen lies completely opened with the abdominal contents exposed. The three cases reported here fall in the second group. which is the only one I shall consider in this paper.

There are no figures pertaining to bursting following cesarean section, so reports from the other surgical branches must be referred to in order to gain an idea of the frequency of such a complication. Holterman [1] of the Marburg Frauenklinik reports a frequency of fifteen dehiscences in 786 laparotomies, or 2 per cent. Fincke, also of Marburg, reports 1.1 per cent. Shipley [2] of Baltimore reports seeing "a considerable number of these accidents" but reports only five cases, all occurring in men. Madelung of Germany gives the relative

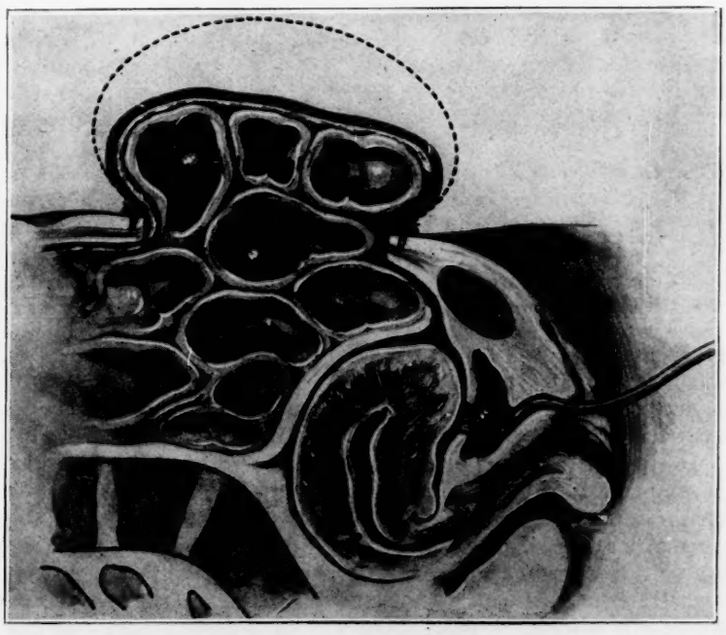

Fig. 3.—Sectional drawing showing method of attachment of rubber to skin.

1. Holterman, Carl: Zentralbl. f. Gynäk. **49**: 213-216 (Jan. 24) 1925.
2. Shipley, A. M.: Ann. Surg. **82**: 452 (Sept.) 1925.

frequency of wound separation in women and men as three to one, a rather significant comparison.

At the Chicago Lying-In Hospital only three wounds, or 0.3 per cent, opened in a total of 1,010 cesarean sections. Two cases, or 0.2 per cent, occurred in 870 laparotrachelotomies, while one (0.7 per cent) occurred in 140 classic sections.

Freeman [3] concludes from extensive animal experimentation and study in the human being that faulty closure allows the inclusion of omentum or bowel between loose stitches in the peritoneum and is mainly responsible for the bursting. In his summary he belittles the significance of other factors which I believe were of great importance in these three cases; i. e., the giving way of sutures, severe strain, infection of the wound, failure of the healing process and malcirculation. I agree with him that a wandering section of omentum or intestine when once through the

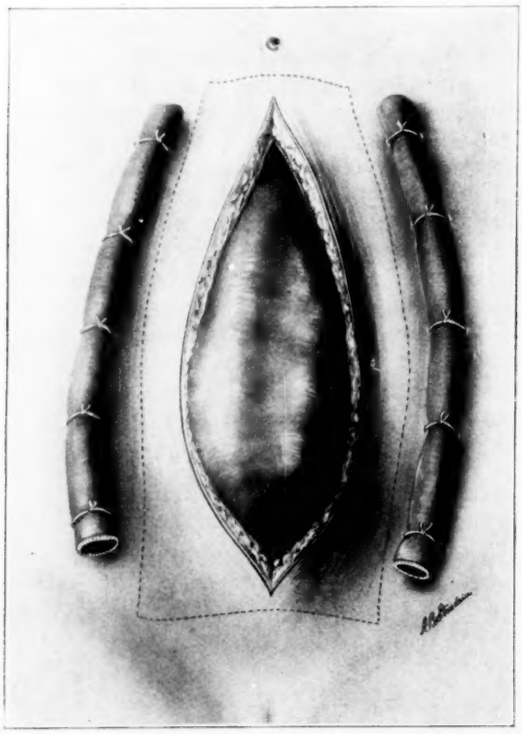

Fig. 4.—Method employed when difficulty was encountered in placing stitches. Rubber dam retains viscera while rubber tubing offers broad area for traction to close opening.

peritoneal gap can spread the entire wound open, but the factors that cause the original wandering of these organs outside the abdominal cavity are more numerous than their inclusion in the wound during closure.

In surgery it is recognized that the healing of wounds is influenced by age, obesity, coincident disease, the character and type of closure, the quality and quantity of suture material, hemostasis and infective processes. As will be seen, these factors played their parts in the cases reported here. Early absorption of the catgut is the reason offered for the giving way of the sutures in case 3. There was not a trace of catgut when the wound was prepared for corrective treatment. There is no question of the quality of the catgut, because never before had there been such an observation. The catgut used in the hospital has always been of the same quality and has come from the same manufacturer for many years. The common factors in all three cases do not explain the disappearance of catgut in one case and its presence in the others. The only marked difference lay in the toxemic condition in the one case, which undoubtedly caused a difference in the tissue fluids which in turn caused rapid and complete disintegration of the catgut. Similar conditions were noted in a diabetic patient with acute pancreatitis, in the surgical service at Cook County Hospital. Weber [4] has observed such behavior of sutures and explains their early absorption on a physiochemical basis.

In the second case, inspection of the wound showed that the strain of a severe coughing spell had not interfered with the line of incision in the left rectus fascia but had split the fascia longitudinally about 0.5 cm. from the incision, leaving some of the interrupted fascial sutures intact in the segment to the right of the split. This is conclusive proof of the importance of strain. It is difficult to conceive a split in the fascia caused by placing interrupted sutures. A severe strain is the only possible agency in causing such a tear. Yet excessive degrees of strain may not cause such an injury. Bickham [5] reports the case of a patient jumping from a second story window following laparotomy, with no interference in the stitches or in the healing of the wound. Apparently, then, there must be a difference somewhere, if the wound of one patient bursts with the strain of a cough and that of another remains intact with a two story jump. Is it in the method of closure? Hardly, because there is little difference in technic the world over. Is it in the catgut? I doubt it.

It is noteworthy that all three of these patients were over 33 and were not in good physical condition, some of the complications being bronchial asthma and obesity, nephritic toxemia and broken compensation, goiter and bronchitis. In other words, they were poor surgical risks. Continued coughing was a common factor. It must be conceded, then, that poor physical condition and cough caused by systemic complications, in women of middle age, are important predisposing factors in the production of dehiscences.

Surgeons have encountered cases in which the skin was perfectly closed but suppuration had caused widespread gaping of all the structures underneath, and separation of the skin edges for the purpose of drainage has resulted in complete dehiscence. This appears to be the reason for separation in the first case. Hematomas in the abdominal wall are important not so much from their ability to separate the tissues as from being the sites of beginning infection.

The part played by the distention of pregnancy on all the structures of the abdominal wall must not be forgotten in the etiology.

PATHOLOGY

The morbid anatomy associated with the condition shows a wide range of changes depending on the extent of the bursting and the time elapsing before the condition is recognized. It varies from a protrusion of a viscus through a small opening to a complete breakdown of the union of peritoneum, fascias and skin, with masses of omentum or coils of intestine free on the surface of the abdomen.

The edges of the wound rarely show fresh or extensive hemorrhage. In one case necrotic tissues extended

3. Freeman, Leonard: Causes of Postoperative Rupture of Abdominal Incisions, Arch. Surg. **14**: 600 (Feb.) 1927.

4. Weber, M.: Zentralbl. f. Chir. **53**: 277 (Jan. 30) 1926.
5. Bickham: Operative Surgery **1**: 336.

back from the margin up to 0.5 mm. or more. Edema of the surrounding tissues and inflammatory reaction were noted in another case, so rendering recognition of the structures difficult until brought out by dissection.

In cases of bursting, protrusion is present regardless of the size of the opening through the peritoneum and other structures. Unless the viscera are adherent to the edges of the wound, the entire wound together with the extruded organs shows within a few hours a yellowish fibrinous deposit associated with a free flow of straw colored transudate from the peritoneal cavity. In twenty-four hours the entire area shows the action of invading organisms, the commonest of which is *Staphylococcus albus*. Other organisms, the type and virulence of which depend on sources of contamination, may gain a foothold.

The fibrin deposit soon agglutinates the masses of protruding organs to one another and to the edges of the retracted wound. It soon covers everything with a protective layer that walls off the peritoneal cavity. This layer at first has a shiny glistening appearance like that of a fine adhesion but is soon replaced by a firmer structure of connective tissue. This resembles the formation of any intra-abdominal adhesion except that it is extra-abdominal. It contracts down, thereby drawing the edges of the wound together, but it may cause bowel strangulation with fatal ileus. The peritonitis developing on the extruded organs in these three cases was of low grade and limited to the parietal peritoneum at the edges of the wound and the visceral peritoneum of only as much of the organs as protruded. Apparently the original fibrin deposit effectively walls off and protects the rest of the abdominal peritoneum from infection.

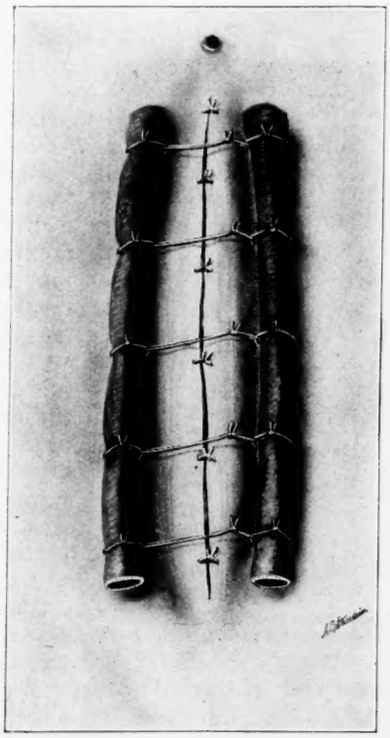

Fig. 5.—Tubes drawn together by means of braided silk drawn through loops holding tubing.

Surgeons have reported dehiscences with similar changes regardless of the location of the incision in the abdomen. In the three patients considered here the incisions were relatively low and were involved through their entire lengths, and completely from within outward.

Johnson [6] reports a case of wound opening on the tenth day following laparotomy which showed not "the slightest reaction, and was exactly as left at time of operation."

6. Johnson: Operative Therapeutics, New York, D. Appleton & Co., 2:49.

SYMPTOMS

Except in the cases caused by violent strain, dehiscence is an unexpected phenomenon, neither the patient nor the physician being aware of its existence until attention is called to the wound by a watery discharge (peritoneal fluid). It may be discovered accidentally during the removal of stitches or during the changing of dressings. The most frequent time of occurrence is during the second week.

The commonest complaint is that of excessive moisture in the dressings. Even the binder and bed clothes may be drenched. The patient may feel the wound tear open or give way during a strain.

Pain was absent before the rupture in all three instances, and occurred only when the wounds parted and later with repeated strainings. During coughing the patient then aims to support the wound and ease pain by placing her hands in her flanks. Undoubtedly, tension at the site of peritoneal adhesions is responsible for whatever pain exists.

The objective observations based on the reported cases are practically those included in the consideration of the pathology. Bleeding does not usually occur, but the free flow of peritoneal fluid is characteristic. The temperature and pulse usually rise shortly after the accident as a result of the low grade peritonitis that soon develops and from manipulations to replace the organs and close the wound. It is worth repeating that there was no evidence of shock in any of these three cases.

There were no symptoms of general peritonitis and intestinal obstruction in these cases, but one can appreciate such possibilities.

PROGNOSIS

Notwithstanding Johnson,[6] who in his Operative Therapeutics says that "the accident is not usually followed by serious consequences," breaking down of the incision is an ugly and serious complication. Early recognition with prompt and energetic treatment prevents death. Strangulation of the protruding bowel or omentum, intestinal obstruction and generalized peritonitis are the usual causes of the fatal terminations. Complications of the heart, lungs and kidney are enhanced by dehiscence, and vice versa. When infection of the wound is the cause of or associated with nonunion or gaping, death is almost inevitable. The available mortality statistics of gynecologic laparotomies with this complication are not very encouraging; those of general surgery are more hopeful:

Gynecologic: Sherer, 75 per cent in four cases; Holterman, 47 per cent in fifteen cases; Madelung, 22.3 per cent, and Erhardt, 20 per cent.

Male surgery: Shipley, no mortality.

To these figures must be added the three recoveries in obstetric cases from the Chicago Lying-In Hospital.

TREATMENT

As in all branches of medicine, prophylaxis is an important element in the treatment. With patients for cesarean section it must be remembered that the entire abdominal wall has been distended for a long time and that these overstretched tissues do not all retract alike after the removal of the baby. I do not presume to dictate any procedure for closing an abdominal incision. Experience in these cases, however, has been a valued teacher, and perhaps it will be helpful to pass on a few modifications of the technic of closure, with

their evaluations, which have resulted from such experience.

De Lee now cuts the structures at various distances from the midline, staggering the incisions in the different layers so that no structure is opened in the plane of the one immediately above it. Even when the entire incision is in the same plane, it is possible in closure to overlap the edges so as to get the same effect as cutting in different planes. First, in closure, the peritoneum is united with sutures close together and naturally with care not to include intestine or omentum. The subsequent layers may or may not be closed with continuous suture, but if a continuous suture is used it should not be drawn so tightly as to interfere with the circulation in the edges. Tight sutures cause pressure necrosis even if interrupted. I prefer to use interrupted sutures after the peritoneum is closed. Catgut should not bear strain. Its purpose is mainly that of approximation and one should not be too reliant on it. With proper asepsis, one need not fear the added number of knots.

It is well known that bursting of the abdominal wound has occurred with all kinds of suturing and all kinds of materials, silk, silver wire, bronze wire, and silkworm-gut. Tension sutures are valuable in safeguarding the closed incision against strains, and should invariably be used when the patient is classed as a poor risk, or in strains from any cause whatever. The rule might be extended to include all cesarean sections. They interfere somewhat with the cosmetic result, but that is a trifling matter as compared with a separation.

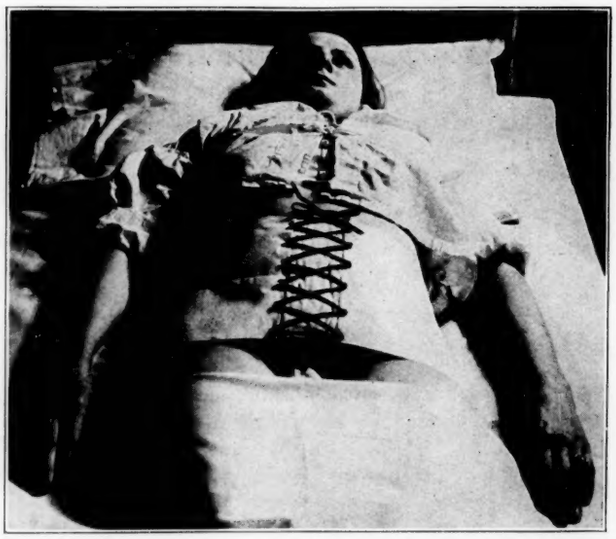

Fig. 6.—Adhesive corset especially useful when repeated inspection of wound is desired. It may be used to reinforce other dressings underneath.

As cesarean sections are usually midline incisions, it is not advisable to remove the stitches too soon. It is inadvisable for this reason to allow patients up as early as in other abdominal operations. All cesarean incisions should be inspected during convalescence whether indicated or not.

The active treatment of dehiscence is purely surgical. In each of the three cases reported here a different method was employed. The accompanying sketches explain them better than words.

When the condition is observed early and in the absence of infection, an attempt at replacement of the organs with secondary suture should be made if the separation is not too great. Local anesthesia is sufficient. In the uncomplicated case, i. e., without cardiac, nephritic or pulmonary complications, one is justified in using ethylene or nitrous oxide. Before deciding on a general anesthetic, one should weigh the effects of vomiting and retching against such a choice.

The method of secondary suture selected, if such a closure is possible, should be one that closes each layer separately and reinforces the closures as a whole with figure of eight silkworm sutures or through and through braided silk. Silver wire has been used for such reinforcing, but this is hardly necessary.

If infection is present the wound should not be closed. As in the first case, the protruded organs are covered with a perforated rubber dam and this in turn by voluminous gauze dressings wet with physiologic solution of sodium chloride. Attempts at pulling or pushing the edges of the wound together may be of value only when the opening is small but are not to be encouraged when the dehiscence is extensive. Every effort should be made not to break down the protective adhesions, which are almost the only barrier the patient possesses against nearly certain death.

A tight binder or corset like that shown in figure 6 is of great value.

Enterotomy and enterostomy to allow the escape of gas from the distended bowel so that it can be replaced have proved more harmful than beneficial.

In this as well as in other obstetric difficulties, watchful expectancy while protecting the eventrated viscera can be employed with great benefit.

SUMMARY AND CONCLUSIONS

Regardless of the protracted argument that too many cesarean sections are being performed for the good of obstetrics, bursting of the abdominal incision following cesarean section is a rare but formidable complication. In my experience with three cases I believe that recovery was due to prompt recognition and special treatment devised for the particular case, rather than to a standard treatment.

Lessons learned from the cases reported show that the reason for the occurrence of this complication was not the inclusion of omentum or bowel in the abdominal closure. They show that poor surgical risks are prone to dehiscence if delivered by cesarean section. They also show that, when one is compelled to perform cesarean section in the presence of systemic complications, prophylaxis demands that greater caution and more time be taken in closure than one is inclined to give in the anxiety to complete the operation and get the patient off the table.

I believe that interrupted and tension sutures should be routine in closure after section. There is danger in unreinforced continuous sutures.

The active treatment of gaping wounds following cesarean section should, whenever possible, be identical with that employed in the closure of laparotomies in general; i. e., closure layer by layer. Modifications must be adopted when this is not practicable. Two such modifications have been presented: (1) the use of lateral tubes for broad zones of traction after replacement of organs and (2) the use of rubber tissue to cover a gap in the abdominal wall with or without infection being present. These three dehiscences can-

not be used as an argument against local anesthesia because of the great number of operations on poor surgical risks in whom success depended on its use.

185 North Wabash Avenue.

ABSTRACT OF DISCUSSION

DR. A. H. CANTRIL, Portland, Ore.: The most important factor in these cases is to find the cause. These operations were all done under local anesthesia, and if epinephrine is used with the local anesthetic, I believe that it often blanches the wound and later allows hemorrhage inside the wound. Those of us who have been unfortunate enough to have to open a wound within a few days after operation remember how much blood and serum it may contain. This may mechanically separate the muscles and furnish a fertile medium for low grade infection. This is one of the important factors in producing a hernia. As the operations reported here were all done under ideal conditions, it would be hard to attribute the unfortunate results to infection. It seems to me that the cause is mechanical, the failure of approximation and the excessive gas pressure and coughing combining to separate the wound and prevent primary union. Of course, the state of the tissues of most of these patients tends to make union slow, but, even so, in many cases we have conditions as bad, plus pus at the time of the operation, and yet almost primary union results. There must be some mechanical separation which we do not seem to be able to prevent. The fact that these same wounds when sutured the second time healed immediately would tend to show that it was not the condition of the patient at the time of operation which caused the nonunion. Blood in the abdominal cavity itself would not seem to play a rôle, as frequently great amounts of blood are left in the cavity following tubal pregnancy and yet there are no complications. The type of incision is a most important factor, as in all surgery, and I think it wise to use the incision suggested, or, in thin women with moderate sized babies, a Pfannenstiel incision. I have used it for more than twenty-five years and have had only one hernia following it. It seems that no matter where the uterus is opened, the tendency toward hernia is the same.

DR. JOHN O. POLAK, Brooklyn: In thirty-five years I have seen eleven postoperative abdominal ruptures. I have come to feel that there are four basic principles in the closure of any abdominal wound: complete hemostasis, avoidance of trauma, complete asepsis, and coaptation without constriction of tissue. Furthermore, I believe that in these cesarean wounds, and in other wounds as well, the mattress nonabsorbable supporting suture is necessary, particularly if the wound is of any length, unless it is of the transverse type. One point I have learned from experience in caring for these cases is that the omentum usually comes out with the eventration. A simple way to manage this accident is to take two wide pieces of washed iodoform or zinc oxide gauze, and sew the two ends together; then bring the omentum down over the extruded intestine, replace the eventration and use this iodoform fold as an abdominal pad to keep the intestines back while placing through mattress sutures of silkworm gut 1 cm. apart, leaving the pads between the omentum and the abdominal wall. By having the two portions sutured with catgut, the protectors may be removed in ten or twelve days, and one is relieved of some of the difficulties presented by the first and second cases with rubber dam. As to the time of occurrence, I feel that all of these eventrations begin before the patient leaves the table. I believe there is a coughing attack, a straining effort, which breaks the peritoneal suture, for we have invariably found this confirmed by the pathologic changes—the quantity of serous discharge with a knuckle of intestine protruding into the wound, which by adhesion has tried to be the buttress. A large percentage of these women with cesarean sections die of peritonitis as a result of leakage from the endometrium along the suture line. It is a point that I have brought out before against the classic section, and is one in favor of the low section.

DR. JOHN VRUWINK, Los Angeles: The high death rate of section in eclampsia everywhere is apparent. This should urge more conservative management. Section might still find a place in the management of eclampsia if conservative measures failed. But Williams has reduced his mortality to 10.5 per cent by the Stroganoff method. The mortality rate at the Los Angeles General Hospital was reduced from 36 to 12 per cent by the intravenous injection of magnesium sulphate. We are not comparing conservative methods; rather, this survey emphasizes a nonsurgical rather than a surgical management of the patient with convulsions. If surgery in the most able hands gives a mortality of 25 per cent, and the general practitioner has from 28 to 40 per cent mortality, then a method which reduces this mortality 10 or 12 per cent demands the attention of physicians caring for patients with eclampsia. The fact remains that patients with eclampsia do better without laparotomy. I found a mortality of 5.4 among 211 cesarean sections in the preeclamptic group. Obviously, if conservative management of the eclamptic patient will save life, then conservative measures are indicated in this type of patient. Here another problem presents itself, and with each patient we must weigh the parenchymatous degenerative changes which may be induced by prolonging pregnancy against the prognosis of operative intervention. Unquestionably, the termination of pregnancy will limit such change in the severely toxic mother, and in view of the reduced primary mortality, cesarean section may be a conservative measure. We who use magnesium sulphate intravenously have come to the conclusion that the termination of pregnancy is indicated when the toxic symptoms cannot be controlled otherwise. In other words, the nephritic type of toxemia will not respond to this therapy, and the pregnancy is better terminated by some method, but not necessarily section, which will cause the least harm to the patient. The rôle of the anesthetic is so convincing that to superimpose one toxic state on an existing toxic state is entirely unjustified.

DR. HENRY P. NEWMAN, San Diego, Calif.: This is an age of preventive medicine, and it should be applied to obstetrics especially, and particularly in regard to the major procedures outlined here. Obstetrics properly taken in hand today means that specialists should see their patients early and through the entire period of pregnancy, and they should anticipate the conditions outlined here. Outside of some emergency work, most of these conditions can be obviated by cesarean section as an operation of election. In that way we save mothers and children. It has been my good fortune to handle many cases in this way, and I have yet to have a mortality among mothers when the child was already dead. My morbidity was much less than that resulting from major operations and from severe labors associated with trauma that is not always determinable at the birth of a child. Such trauma may be slight injury to muscles, nerves, tendons or other structures of the pelvis. Indeed, I do not regard seeing obstetric patients for a few days or weeks as sufficient. We should observe them for a considerable time to know whether our results are satisfactory or otherwise, or until the mother returns to her normal state. When the operation is elective, it is a comparatively simple condition, perhaps as simple as any abdominal operation we may do. We can prepare for all emergencies. We know just how, and when done with care, we should save the mother. I advocate for specialists not the promiscuous use of cesarean section but a more careful study and observation of cases and then early operation, or operation before conditions have progressed to a serious stage. With such measures we shall be much more successful in our work.

DR. J. C. LITZENBERG, Minneapolis: The reports from Los Angeles, added to those from New Orleans, Brooklyn and Detroit, force us to draw certain conclusions. The first, of course, is that there are too many cesarean sections being done; second, that the surgical complications must indicate to a certain degree, at least, incompetent surgery, but most important a discouraging incompetence in surgical judgment. The reports from these three large cities warrant us in drawing the conclusion that cesarean section has no place in the treatment of eclampsia, and it is doubtful whether it has a place in the treatment of toxemia. In Minneapolis, in certain hospitals at least, we have tried to attack this question of the promiscuous use of cesarean section by passing a rule by the staff and administration of the hospital that no cesarean section may be done in such a hospital without obstetric consultation. In those

hospitals no man can do a cesarean section, not even the chief obstetricians, without obstetric consultation. If more hospitals would adopt this rule, these unjustifiable cesarean sections might be eliminated.

DR. D. A. HORNER, Chicago: The Pfannenstiel incision is really not justifiable in cesarean section. Up to the sixth or seventh month, the incision can be employed but not to great advantage. At term it is a most difficult one to employ. In one of the cases which I have reported, there was no catgut visible on inspection of the wound when the patient was brought to the operating room for repair. We considered the problem from all angles, from the conditions of manufacture to the handling of the catgut on the instrument table. None of the principles of surgery mentioned seemed to apply. I have spoken to surgeons in various parts of Chicago, men who do a tremendous amount of surgery, and I found only one who had observed a similar condition, and that was in a case of diabetes complicated by an acute pancreatitis. I have considered such complications in my paper.

THE CRYSTALLINE LENS SYSTEM IN MAN AND IN THE LOWER ANIMALS*

JOHN O. McREYNOLDS, M.D.
DALLAS, TEXAS

At the Washington session of the American Medical Association in May, 1927, I reported some preliminary observations on the crystalline lens system. I now present some additional data pertaining to the lens system, especially from the point of view of comparative anatomy. It would seem unnecessary to defend the study of any anatomic structure either in regard to its embryologic development in man or in connection with the long and complicated processes illustrated in various lower species of the animal kingdom. The nature of the lens, the purpose for which it was formed, the mechanism of its movements, its growth and its nourishment, the factors leading to its degeneration and the measures that will prolong its usefulness, and, finally, the procedures best adapted to restore vision when lost through lenticular opacities or luxations are all better understood when we can see, although dimly, the mysteries of nature's methods and her adaptation to the needs of life. There is a fascination and a charm in this stroll through the garden of truth. If we can find out some of the hidden aims and methods in natural laws, we can better adjust our own efforts so as to make them more effective in our service to mankind. I do not indulge the hope of discovering any new principles in biology, and my purpose here is simply to present some interesting anatomic material with illustrations that may help to stimulate and keep alert our interest in the anatomy, physiology, embryology and phylogenic morphology of the human eye.

The excellent contributions to comparative ophthalmology wrought out through the diligence and erudition of Dr. Casey A. Wood will always remain a storehouse of information and inspiration to ophthalmologists of the world. Until the publication in 1928 of the work of Ida C. Mann there was, according to Sir John Herbert Parsons, "no comprehensive monograph in English devoted to the embryology of the human eye." So thoroughly has she given her talents and opportunities to this task and so beautifully illustrated are the specimens she has studied that we shall always feel grateful for this helpful service to ophthalmology in the English tongue.

The importance of the lens in focusing rays of light on the retina varies enormously in the eyes of different species. In some of the lower forms of animal life the act of vision is accomplished without the assistance of the lens or any other refracting medium. In the simplest forms there is not even any definite organ of sight but simply a general response to the action of light, this power residing in the general external surface of the animal or throughout its entire substance. The power of light manifested by its attractive or repellant influence is clearly shown in many animals. The infusorian *Englena* was found to seek the light, especially blue light. The bacterium *Photometricum* is active only under the influence of light, its movements being determined by the amount and character of the illumination.

Some of these lower forms of animal life instinctively move toward the light or away from the light according to the special characteristics of the species. Even in plant life the profound influence of light on the growth, form, color and development of the organism is found. These plants in a strict sense do not see the light as reflected from material objects, but they do in a broader sense feel the light and respond to its action. With advance in the scale of development, the first well defined organs of vision consist simply of small areas or spots of pigmented cells designed to promote the adsorption of light and then to convey these impressions to the general sensorium. These primitive visual cells, found in such animals as amphioxus, do not contain any

Fig. 1.—Traumatic cataract: This was a traumatic cataract depending on a penetrating foreign body, and it shows the inflammatory exudates poured out around the lens and binding together into a definite membrane the different fibers of the compound ligament of the lid.

mechanism for refracting or concentrating the rays of light but have simply the power of appreciation and appropriation of the light waves around them. Among the first eyes in the animal kingdom with a refracting medium for gathering up and concentrating the light

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rays on a sensitive interior are the monocellular eyes of some mollusks, cephalopods, some worms and the humble *Medusa charybdea.*

Of course, it would be unthinkable to undertake even a superficial presentation of comparative ophthalmology in the limited time allotted to this paper. This fact is

Fig. 2.—High power view of human fetal lens: latitudinal section showing the lens fibers with their nuclei, especially numerous and prominent in the equatorial zone.

obvious when one considers the countless species in the animal kingdom and the myriad of ocular variations that have been studied. There may be recalled, for example, the hundred thousand varieties of beetles in the insect world alone, among which one finds sometimes a single individual insect provided with thousands of eyes and thousands of lenses. There may be recalled also among the higher orders some 13,000 varieties of fishes and 12,000 varieties of birds, each type presenting its own characteristics in ocular anatomy and physiology. So in this brief paper I shall call attention only to some of the outstanding features of the lens system in those animals that offer some striking contrasts with corresponding structures in the human eye.

We are in the habit of regarding the human organism as the last word in the process of evolution, and this, of course, is true in the matter of cerebral development. But on every hand we find lower animals that excel us in many features of physical power and efficiency. The crystalline lens system is no exception to the rule. The visual organs of some birds are infinitely superior to those of the human species. And when we consider many of the requirements of aerial life we find that necessity, heredity and environment have determined the characteristics of the different varieties of avian vision. The enormous amplitude of accommodation, amounting in some cases to 90 diopters, and its marvelous flexibility, would be absolutely necessary to the swift flying bird that can light with accuracy on a swinging telephone wire or catch in its beak a minute insect moving rapidly in an ever-changing direction.

The refraction of the large fast flying birds of prey must be telescopic, and the swift and alert martin or swallow, microscopic. In many species the eyes are both telescopic and microscopic and rapidly interchangeable.

Turning now to the fishes, we find a vastly different type of vision required and one that is much inferior to that of birds. In the case of terrestrial and aerial animals, the medium through which the vision must penetrate is for the most part a highly transparent atmosphere favorable for accurate vision at all distances, while the medium for fishes so definitely obstructs the passage of light that distant vision is impossible. For these reasons aerial animals are generally hyperopic, while marine animals are myopic or emmetropic. Moreover, wild life tends to favor hyperopia, while domestic life favors the development of myopia. This has been repeatedly demonstrated by ophthalmoscopic examination; for example, of wild birds in their native environment and of the same birds after even two or three years' confinement in a zoological garden. These observations were made by Dr. Casey A. Wood, who also noted the great frequency of a form of disseminated choroiditis among these same birds after a short period in captivity.

A somewhat similar change may be noted in the human species, as shown by a contrast of the myopic book reading blond races of northern Europe with the American Indian and other brunet peoples whose activities are outdoors and concerned chiefly with distant vision.

Among fishes the lens is almost uniformly a perfect sphere in all states of accommodation. It has fixed definite geometric proportions throughout the life of the animal and retains this form after death. Its influence in accommodation therefore depends on its relation to the retina, its position within the globe. This movement of the lens backward and forward is accomplished through

Fig. 3.—Eye of the dragon-fly Libellula depressa: The eyes show a tessellated arrangement of the lenses. The macroscopic appearance is that of a screen used in making half-tones. Reduced from a photomicrograph with a magnification of 200 diameters.

the means of a special muscle contained in the falciform process, that queer scythe shaped structure that extends from the optic disk to the campanula of Haller. Throughout these wide excursions of the lens no change whatever takes place in its curvature or refraction, a condition in marked contrast with the mechanism of accommodation in man, which is accomplished mainly

through a change in the curvature of the lens, especially its anterior surface.

The anatomic features referred to are well illustrated in the tarpon and the shark (presented in mounted form for macroscopic study). These are among the largest eyes found among the billions of inhabitants of the oceans. The tarpon eye, being one of the largest and most typical, shows the piscian characteristics very clearly. The large spherical lens is almost in contact with the cornea, and is held in position by the suspensory ligaments. The intimate connection of the vitreous with the lens ligaments is plainly illustrated and shows the connection which the vitreous has with the movements of the lens. A very striking feature of the tarpon eye is the enormous thickening of the so-called choroid gland, which in reality is not glandular at all but is composed of a complex network of blood vessels or rete mirabile. Its connection with the lens system is probably in the main nutritional. The functioning of the lens in such an eye is made possible by the compression of the vitreous, which is rigidly confined in the anterior segment of the globe by the strong fibrous sclera, reinforced by plates of cartilage and bone somewhat as in the case of birds.

Some interesting features in the refraction of fishes are found in the fact that the cornea is often exceedingly irregular and flattened without producing any marked impairment in the visual acuity. This is due to the fact that the index of refraction of water, especially sea-water, and of the cornea and of the aqueous would vary little indeed, and consequently there would not be much change in the refraction as the light passes through these media. The main change, therefore, would be induced by the crystalline lens itself. Of course when the piscian eye is brought into the atmosphere, the refractive change would be very pronounced and the eye would become, in a high degree, myopic.

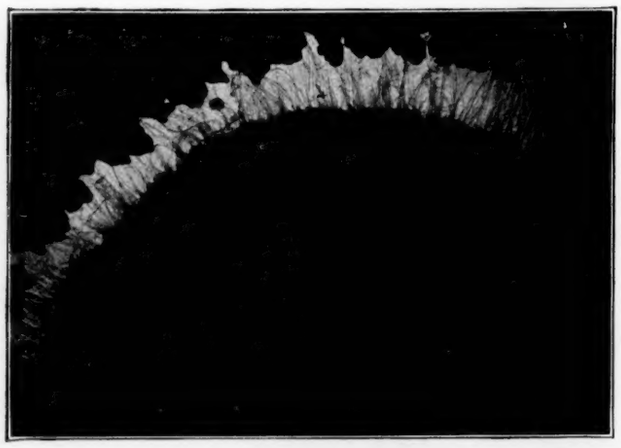

Fig. 4.—Compound ligaments of the human lens: This represents a quadrant of the periphery of the lens with its attached ligaments, reduced from a photomicrograph with a magnification of 200 diameters. The ligaments, shown in profile, suggest by their radiating appearance the aurora borealis.

In the avian eyes which I am presenting, there are two remarkable specimens which show marked differences in conformation. The owl's eye is interesting because of the prominent part which the cornea plays in its refraction. The cornea, being extremely thin in its central area, yields to the increased intra-ocular pressure and bulges forward in a somewhat cylindrical form, thus enormously increasing its refractive power. The crystalline lens likewise is carried forward during the compression of the vitreous and likewise contributes to the increase in the refraction. The ostrich eye is in marked contrast with this, because the accommodative

Fig. 5.—Anterior view of the human lens system, reduced from a photomicrograph with a magnification of twenty diameters. This shows a complex anterior lens star composed of fifteen branches or seams, along which the lens fibers meet. It also shows irregular sectors of opacity in the lens cortex. A striking feature is the clear disposition of the bundles of the lens ligaments as they pass over the anterior surface of the lens capsule and are attached at their outer extremities to the ciliary processes, to the spaces between them and to the area extending back to the ora serrata.

requirements of this bird are much less; although the ostrich eye is one of the largest to be found among all terrestrial animals, it has not attained the visual perfection of many of the smaller avian eyes. The principal factor, however, in increasing the refractive power in avian eyes is the change in the anterior curvature of the crystalline lens, effected chiefly by the markedly complex action of the muscle of Crampton, Muller and Bruecke.

The falciform process in fishes is best described by the following quotations from Wood:

> This homologue of the pecten in reptiles and birds extends from the entrance of the optic nerve forward to a point just behind the iris. In this situation it rises abruptly in the form of a sharp end crowned by an extremity, generally conical, to which the name campanula of Haller has been given. By its free extremity the campanula is inserted upon the infero-internal part of the equatorial border of the lens. The process is colored brown or black, while the campanula is uniformly white. . . . In the tissues of the campanula one recognizes a bundle of smooth muscle fibers directed along the axis of the cone, which represents the body of a muscle.
>
> These fibers are inserted into the internal wall of the process, their other extremity being attached, by a short tendon to the capsule of the lens at its equator. . . . The function of the muscle, as pointed out by Leydig, is to retract the lens; indeed, it is the muscle of accommodation in fishes.
>
> The height of the processus falciformis varies considerably. In the acanthopterygian group it is especially short. The histology of the falciform process, then, shows it to be made up partly of connective tissue, smooth muscle fibers, nerves and blood vessels, not to forget the vitreous tissues to which it is adherent. It may be added that the process is absent in the selachians, the eye of these animals being of a higher order than that of fishes. The action of the processus

falciformis, functionating as the piscian retractor lentis and muscle of accommodation, has been well worked out by Leydig. The muscle arises below, externally and behind the equator of the lens, and its tendon is inserted into the equator on the nasal side. When it contracts, the point of insertion is drawn backward, downward, and toward the temple. It also causes the lens to rotate a little on its anteroposterior axis. The lens is firmly fixed by its suspensory ligament, a fibrous band that runs all around the equator and is attached to the ciliary ring at a point exactly opposite the insertion of the campanula into the lens.

One of the most interesting features in the eyes of the bird is the pecten, which is the homologue of the processus falciformis in fishes.

In her chapter on the "Phylogenetic Development and Morphology of the Human Eye," Dr. Mann brings out the following points:

There are, however, certain points in the evolution of the human eye within the vertebrate phylum which must be discussed at greater length. It is possible to trace a scale of evolution, both among the mammalia and among the vertebrates as a whole. When the entire phylum is considered it will be seen that, although the human eye represents the highest point in mammalian development, it is only one of a small number of culminating types, which have arisen from a common beginning by specialization along diverging lines. The common ancestor may be considered to have possessed an eye resembling in many features that found among the ganoid fishes at the present time, since these animals possess an eye of a simple generalized type not showing any of the modifications which might be considered as secondary. Like all vertebrate eyes, it is developed from neural and surface ectoderm, and is surrounded by paraxial mesoderm. The human eye

Fig. 6.—Owl's eye, Bubo virginianus. This represents a meridional section of the eye. From above downward are seen the following: The enormously protruding cornea, which is a combination of cylinder and cone and performs an exceedingly important function in refraction. A portion of the iris and ciliary body has been removed, leaving fragments of the ciliary body still closely adherent to the capsule of the lens. The lens is a perfect ellipsoid of revolution. The intercalary zone which represents a section of the globe immediately posterior to the lens is a peculiar structure. Its form is that of a truncated cone and it presents in a conspicuous way the bony plates that give firmness and resistance to this portion of the globe. The posterior segment shows the retina detached and thrown into folds, and also the small but quite distinct pecten.

cannot be considered as reaching the high water mark of efficiency as an optical instrument, though the coincident development of the associated cerebral centers in man has given it undoubted precedence as a percipient organ.

In birds, evolution of the eye has proceeded along slightly different lines, and has resulted in the production of a more perfect optical mechanism, subserving a sense which plays an even greater part in the life of the bird than it does in man. This, however, is more than counterbalanced by the failure of coincident cortical development. Considered from an evolutionary standpoint purely as an optical instrument and not in connection with the cortical powers of appreciation, the human eye leaves a certain amount to be desired. It is true that among the Mammalia it occupies a high place. It

Fig. 7.—Squid's eye, Loligo pealii. The original specimen was magnified fifty times. It is an oblique section of the eyeball with the cornea removed, exposing the spheroidal lens with its prototype of annular ligament in the fishes passing around the equator of the lens. The iris does not extend beyond the periphery of the lens, and posterior to it is the ciliary body closely adherent to the primitive annular ligament. There is a large posterior chamber where the retina is detached and thrown into folds. The choroid and sclera are external to the retina.

is (or should be) emmetropic and possesses a good range of accommodation, while most of the lower mammals are said to be hypermetropic. It also possesses a very highly specialized area of acute vision, the fovea centralis, which is only found developed to a like perfection in the larger anthropoids. It is, however, primitive and not far removed (save in the possession of a macula) from what one might call the basal type of vertebrate eye. It lacks certain specialized features which characterize some of the eyes of the lower mammals and the Sauropsida.

Two examples will make this point clear.

Firstly, the function of the human retina is to a certain extent impeded by the constant presence of circulating blood in the retinal vessels in front of the percipient layer, and also by the remnants of embryonic vessels in the vitreous. In the Sauropsida the hyaloid system in the embryo is reduced to a minimum so that the vitreous is very nearly acellular and homogeneous, while, instead of a network of vessels on the retina, the definitive intra-ocular blood supply is represented by the pecten alone (which is in essence a mass of thin-walled capillaries projecting from the optic disk). Secondly, the human eye, though it possesses the power of dark adaptation, lacks the extreme range of such adaptation found in the Carnivora. In these animals there is not only a very specialized iris, which allows of the alteration of the pupil from a state of complete circular dilatation to one of contraction into an extremely narrow vertical slit, but there is also present in the choroid a layer known as the tapetum, which, owing to its highly polished reflecting surface, probably helps to render appreciable much lower degrees of illumination than can be perceived by the human eye.

ABSTRACT OF DISCUSSION

DR. HALLARD BEARD, Chicago: The study of the crystalline lens in its optical, anatomic and physiologic relations offers to scientific workers a field of interest and an opportunity for precise research which is equaled by few and excelled by no other department of ophthalmology. The great prevalence of lenticular opacities and their unquestioned economic importance have absorbed the attention and drawn on the energies of countless investigators; yet new problems are arising faster than old ones can be solved. The very accessibility of the lens and the completeness of our knowledge of its histologic structure and

embryonal development invite many able workers to try their hand at unraveling these problems, and though some progress is made from year to year, much painstaking and tedious work has yielded little but disappointment.

Many of the unsolved problems of consuming interest in this field will readily occur to all: such, for example as the questions, Do remnants of lens material left in the eye after extraction of cataract in and of themselves cause the so common postoperative iridocyclitis? If so, is the inflammatory process an anaphylactic reaction and can reliable tests be applied to prove it? Can lenticular opacities of moderate degree, i. e., not so dense as to demand surgical treatment though dense enough to impair vision, be favorably influenced by any local or general therapy? Since it has been learned that the reaction of the living organism against the introduction of the free lens protein into the tissues is organ specific and not species specific, there has arisen a considerable amount of optimism concerning the possibilities of therapy with animal lens extracts. I still look forward to developments of great practical value through work along this line.

Much has been added, of recent years, to our knowledge of the crystalline lens system in health and in disease by the use of the slit lamp.

One cannot but agree with Dr. McReynolds when he says that it would seem unnecessary to defend the study of an anatomic structure as it occurs in the lower orders of the animal kingdom. One may profit much by even a cursory review of some of the work on the comparative anatomy of the crystalline lens, and one is impressed as much by the wide dissimilarity of this and related apparatus in the fish from that of man as by the similarity in the mammals. In our busy pursuit of the immediately practical, in our enthusiasm for the newer instruments, we too often ignore the wealth of interest afforded by study of the lower animals, and I find it refreshing to observe in so practical a clinician as Dr. McReynolds a lively interest in this field.

THE ENDOMETRIUM IN SO-CALLED IDIOPATHIC UTERINE HEMORRHAGE *

C. F. FLUHMANN, M.D.
SAN FRANCISCO

The names "idiopathic" or "functional" uterine hemorrhage are generally given to a condition characterized by some form of abnormal uterine bleeding occurring in a woman in whom a pelvic examination fails to reveal any palpable lesion as the etiologic factor. It is thus not a definite clinical entity but represents a number of disturbances that manifest themselves with this outstanding symptom.

The endometrium is of paramount importance in all such cases, even though the primary cause of the disease is seldom to be found in this tissue and it merely reflects an abnormality arising in the ovary or some other organ. The present study is an attempt to analyze the histologic changes in the endometrium in a series of patients presenting this condition. In all, ninety cases have been considered in which no gross changes, such as fibromyomas, malignant tumors, pelvic inflammatory disease or extensive erosions of the cervix, could be demonstrated, although in some instances there was a slight uniform enlargement of the uterus. No patient was included in the group if complaints had set in within six months following a pregnancy or if the pathologic study revealed changes attributed to gestation. The cases were taken consecutively and represent the number seen at the Stanford Women's Clinic over a period of some years, except for those which were necessarily eliminated because of insufficient clinical information or pathologic material.

An analysis of the clinical histories showed that the patients could be divided into two main groups, group A consisting of fifty-seven women of the childbearing age, and group B, of thirty-three women over 40 years; that is, in the preclimacteric or climacteric period. (Unfortunately only two patients of this series represent bleeding at puberty, and they have been included in the first group.) Each of these two divisions were then subdivided into six classes according to the clinical characteristics of the symptom of bleeding and comprising (1) patients with menorrhagia, that is, those who have a regular four week menstrual cycle but with a prolonged and profuse flow (group A, thirteen cases; B, four cases); (2) patients in whom the menses occur at irregular, usually shortened, intervals (A, ten cases; B, five); (3) patients with completely atypical irregular bleeding having no relation to the menstrual cycle (A, seventeen cases; B, eleven); (4) patients with continuous bleeding lasting from a few days to several weeks, which sets in following a previously normal menstrual cycle (A, eight cases; B, five); (5) patients who note that their menstrual periods become progressively more profuse or irregular and end finally in continuous or atypical irregular bleeding (A, six cases; B, three), and (6) patients with bleeding setting in following a period of amenorrhea (A, three cases; B, five).

The material for microscopic examination consisted mainly of curettings, but in eleven instances the whole uterus was available for study. The sections were mounted in paraffin and stained with eosin-hematoxylin; methyl green pyronin stain for plasma cells, mucicarmine for mucus, and van Gieson's for collagen fibrils were employed whenever indicated.

It was now seen that the histologic changes in the endometrium fell into six groups; namely, (1) glandular hyperplasia of the endometrium, forty-nine cases, 54 per cent of the total; (2) endometrial polypi, three cases, 3 per cent; (3) simple hypertrophy of the endometrium, two cases, 2 per cent; (4) endometritis, seven cases, 8 per cent; (5) atrophy of the endometrium, five cases, 6 per cent; (6) normal endometrium, twenty-four cases, 27 per cent.

TABLE 1.—*Glandular Hyperplasia of the Endometrium*

	Group A	Group B
Profuse periods, regular four week cycle	4	3
Irregular menses	3	2
Atypical irregular bleeding	10	7
Regular cycle, then continuous bleeding	3	4
Progressive menorrhagia and metrorrhagia	4	3
Bleeding after period of amenorrhea	2	4
Total	26	23

GLANDULAR HYPERPLASIA OF THE ENDOMETRIUM

Glandular hyperplasia of the endometrium was first described in this country by Cullen and has attracted a great deal of attention since the extensive studies of Schroeder, Meyer and Novak. In this series it has proved the most common finding not only in women at the menopause but also in patients of the childbearing age, and clinically it manifested itself in the six ways that have been mentioned. The histologic picture is characteristic (fig. 1). There is a hyperplasia of both the stromal and the glandular elements of the

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endometrium, so that as a rule it is much thickened and in some cases has a polypoid appearance (the "polypoid endometritis" of the older authors). The normal differentiation into superficial, functional and basal layers is lost, and the endometrium has essentially the same features throughout its whole depth. The stroma is dense and cellular, and shows occasional mitotic figures, but it is in the glands that the most striking changes are noted. They are very numerous, of varying size, show no evidence of secretion, and

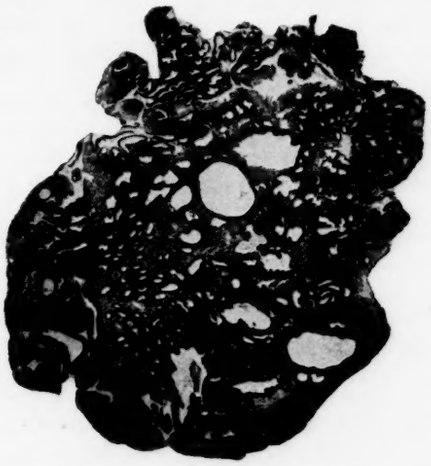

Fig. 1.—Glandular hyperplasia of the endometrium; × 16.

lack the usual coordinate arrangement corresponding to the layers of normal endometrium. The lining cells frequently show marked proliferation, have the appearance of crowding together, and may even form a type of papillary projection into the gland lumen. Finally, many glands show cystic dilatations, a feature which is so prominent in some cases that the tissue looks like the cross-section of a Swiss cheese (Novak).

Although in these cases there is a gross disturbance in the structure of the endometrium, it is necessary to look further afield to find changes that will account for the bleeding, since hyperplasia is not necessarily associated with this symptom and in fact has been observed in patients with amenorrhea. Schroeder [1] maintains that the bleeding is due to the presence of areas of necrosis with a sloughing of the endometrium resulting in the formation of open wounds. This process is accompanied by a thrombosis of the blood vessels, which he says is to be observed in every case of hyperplasia endometrii followed by bleeding. Seitz,[2] Novak and Martzloff,[3] Adler [4] and Beckman,[5] however, have failed to find the occurrence of thromboses as frequently as Schroeder, although they have noted them in isolated instances. In a more recent study, Shaw [6] has given special attention to localized areas of disintegration and considers their occurrence and the presence of cystic glands the two most characteristic features of hyperplasia of the endometrium.

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The specimens of this series showing hyperplasia of the endometrium were carefully examined for the presence of necrotic areas and thrombosed vessels. Twenty-nine patients were actually bleeding at the time of operation, and in eleven of these larger or smaller areas of necrotic endometrium could be demonstrated (fig. 2), while they were found only once in twenty nonbleeding patients. This tissue disintegration occurred frequently in very vascular regions, and various stages of thrombosis were noted in most instances. Although their presence was thus not proved in all cases, it is important to remember that the negative finding is not conclusive in view of the technical difficulties associated with their demonstration. In the first place, it is essential that the specimen be obtained at a time when the patient is actually bleeding, a fact that has been overlooked by some investigators. Since the necrosis occurs in small localized areas it would be a simple matter to miss them completely if only one or two were present at the time of operation, unless the whole endometrium was subjected to a careful microscopic examination. It is also quite conceivable that necrotic pieces are sometimes discarded during the process of treating curettings by washing before fixation in order to separate the tissues from surrounding blood clot. And, finally, in some specimens in which the whole uterus is obtained, there are deficiencies in the surface of the endometrium which lead one to assume (with due reservations for easily produced artefacts) that a sloughing off of the upper layers has taken place, although the actual process cannot be demonstrated. For these reasons, and in view of the fact that no other clear theory has been

Fig. 2.—Fragment of necrotic endometrium from a patient with hyperplasia endometrii who was actually bleeding at the time of the curettage. Attention is directed to the dilated vein near the surface. Slightly reduced from a photomicrograph with a magnification of 100 diameters.

brought forward to account for the mechanism of bleeding in hyperplasia, it is felt that the occurrence of localized necrosis is a likely explanation for at least the majority of cases.

The changes in the blood vessels of the endometrium which accompany hyperplasia are also of considerable importance in the consideration of local factors leading

to hemorrhage. During the stage of proliferation [7] in the normal endometrium one usually sees the larger branches near the basalis, whereas only an occasional one is visible in the superficial layers. In hyperplasia, however, the presence of numerous large vessels extending throughout the whole depth of the endometrium is a prominent feature. In many cases there are also markedly dilated veins under the surface

Fig. 3.—Atrophia endometrii from a patient with uterine bleeding. The loss of the superficial layers of the mucosa suggests the mechanism by which the hemorrhage was brought about. Slightly reduced from a photomicrograph of 100 diameters.

epithelium (fig. 2) and, as Seitz [2] has suggested, these must be held as an important factor in the production of bleeding and may account for this symptom when focal necroses are not present. It is readily conceivable that a slight trauma, a sudden increase in blood pressure due to bodily exertion, might cause the rupture of one of these distended vessels and result in a considerable hemorrhage. In any case the increased blood supply of the tissues offers a ready explanation for the excessive amount of blood loss associated with hyperplasia, whether as a menorrhagia or a metrorrhagia.

TABLE 2.—*Endometrial Polypi*

	Group A	Group B
Profuse periods, regular cycle	1	0
Irregular menses	0	1
Atypical irregular bleeding	0	1
Total	1	2

ENDOMETRIAL POLYPI

Although one or two of the specimens of hyperplasia showed gross polypoid projections, these have not been classified separately, since the problem of bleeding remains essentially the same. There are, however, three cases of endometrial polypi that must be considered by themselves.

The first was found in a woman, aged 27, who complained that menstruation had been prolonged and more profuse for one year. A curettage was performed while she was bleeding, and the endometrium showed the normal picture of desquamation. In addition, a polyp 3 cm. long by 2 cm. wide was obtained. Microscopic examination showed this to be a very vascular structure, made up mostly of normal endometrium, but with muscle and connective tissue elements near the base. There were many glands and some were in a state of secretion. The surface of the polyp showed an extensive necrosis, infiltration with blood, and accumulations of polymorphonuclear leukocytes and lymphocytes.

The other two cases occurred in women over 50 years of age. The endometrium in both instances was atrophic. The polypi showed a thick connective tissue stroma in which were scattered a number of endometrial glands, some cystic, and numerous blood vessels. In one case there were also necrotic areas and large dilated veins near the surface of the polyp.

TABLE 3.—*Simple Hypertrophy of the Endometrium*

	Group A	Group B
Profuse irregular periods	0	1
Atypical, irregular bleeding	1	0
Total	1	1

SIMPLE HYPERTROPHY OF THE ENDOMETRIUM

The term simple hypertrophy of the endometrium is applied in this study to a lesion characterized by a gross thickening of the endometrium while at the same time its histologic features are cytologically normal and correspond to the proper phase of the menstrual cycle. At certain periods it may thus merely represent an accentuation of the "functional hypertrophy" that

Fig. 4.—An example of lack of correlation between the histologic picture of the endometrium and the menstrual history. The endometrium is in the midproliferative phase, while according to the patient's history it should have corresponded to the stage immediately preceding menstruation. Slightly reduced from a photomicrograph with a magnification of 100 diameters.

occurs regularly preceding menstruation. It has been referred to by a number of authors, for example, Seitz,[2] Adler [4] and Beckman.[5] There are several objections to the use of the term and even to its recognition as a histologic entity. In the first place, the

7. In this study Schroeder's classification of the different phases of the menstrual cycle has been used. The postmenstrual and interval phases are grouped under the name "stage of proliferation"; the premenstrual, as the "stage of secretion"; and the menstrual, as the "stage of desquamation."

name may be readily confused with glandular hyperplasia, a condition with which it has absolutely no connection. Then, as Emil Novak states in a personal communication, it may lead to confusion because there is no uniformity among authors as to the interpretation of the term, some employing it to indicate a gross overgrowth of the endometrium, which may occur for instance in the presence of edema, while others use it to designate the condition in which the individual elements, particularly the glands, are overgrown.

There are two specimens in this series which should be distinguished in some manner from a purely normal tissue, and in both cases the most striking feature is a marked thickening of the whole endometrium due to an overgrowth in normal proportions of both the glands and the stroma. In the first patient the specimen was obtained on the ninth day of the cycle, and besides the marked thickness of the mucosa for this stage there is an impressive increase in the number of blood vessels in the superficial layer. The bleeding in this patient was slight in amount, lasted for only a few hours, and occurred after exertion. This brings up again the consideration of the importance of dilated veins near the surface and the possibility of their injury to account for the abnormal bleeding in such a case. The second patient was a woman, aged 45, who complained that menstruation lasted as long as seventeen days and was profuse. At operation her period was overdue nine days; the endometrium showed a normal phase of secretion, but it was tremendously thickened and even sections fixed in formaldehyde measured 1 cm. from uterine muscle to the surface. It does not seem surprising that the desquamation of all this tissue at the time of menstruation should produce a very profuse and prolonged flow.

TABLE 4.—*Endometritis*

	Group A
Profuse periods, regular four week cycle	1
Atypical irregular bleeding	3
Regular cycle, then continuous bleeding	1
Progressive menorrhagia and metrorrhagia	2
Total	7

ENDOMETRITIS

The subject of endometritis, particularly the chronic type, presents a complicated gynecologic problem, and it is beyond the scope of this paper to consider it in its various aspects. It is only since Hitschmann and Adler [8] described the cyclic changes of the endometrium that this lesion has been at all understood, and unfortunately even now many cases are labeled "endometritis" when no true inflammatory process exists at all. Seven specimens in this series are considered a severe inflammatory disease of the endometrium, an "endometritis interstitialis," and it is felt that the cause of the bleeding is to be found in a direct injury to the mucosa resulting in necrosis and ulceration. The most characteristic histologic finding was a tremendous infiltration of the stroma with polymorphonuclear leukocytes and lymphocytes; in three instances there were a great number of plasma cells. The glands were free from any abnormal change, except so far as they were mechanically affected by the stromal lesion. The general appearance of the tissue was fairly well preserved in five of the cases, but in the other two there was such a wholesale infiltration with inflammatory cells and blood that the phase of the menstrual cycle was scarcely recognizable and the presence of necrotic areas was evidence of a considerable destruction of the mucosa.

ATROPHY OF THE ENDOMETRIUM

Five patients presented an atrophic condition of the endometrium as the sole histologic finding. In four of these, only curettings had been obtained and nothing was noted which could be considered as the factor concerned in the mechanism of the bleeding. In the fifth case, however, the whole uterus was available for study,

TABLE 5.—*Atrophy of the Endometrium*

	Group B
Atypical, irregular bleeding	3
Regular cycle, then continuous bleeding	1
Bleeding after period of amenorrhea	1
Total	5

and it was evident that there had been an extensive loss of the superficial layers of the endometrium (fig. 3). The basalis was the only part of the mucosa that could be seen in most of the sections, but in one or two areas small portions of the functionalis were also visible. The surface epithelium was not observed at any point, so that it was evident there had been a wholesale sloughing of the surface of the endometrium and the bleeding was a natural accompaniment. The patient was of the menopause age, had had irregular uterine hemorrhage for three months, and was actually bleeding at the time of the curettage.

NORMAL ENDOMETRIUM

Microscopic examination of the endometrium revealed an essentially normal tissue in twenty-four patients, and of these, sixteen gave a clinical history of either a menorrhagia or an irregularity in the occurrence of the periods.

One patient who complained of menorrhagia showed a definite increase in the number of blood vessels in the superficial layers of the endometrium, and another with intermenstrual bleeding had many dilated veins beneath the surface epithelium, thus again suggesting this feature as a possible factor in the production of hemorrhage. The histologic picture in the group of patients whose menses occurred at irregular intervals showed in most instances that the endometrium had adapted itself to an altered stimulus from the ovary resulting in a shortening of the various phases of the cycle. For

TABLE 6.—*Normal Endometrium*

	Group A	Group B
Profuse periods, regular four week cycle	7	1
Irregular menses	7	1
Atypical irregular bleeding	3	0
Regular cycle, then continuous bleeding	4	0
Bleeding after period of amenorrhea	1	0
Total	22	2

example, in two patients who complained that their menstrual periods occurred every two weeks, a fully developed secretory phase was demonstrable in the endometrium on the thirteenth and fourteenth days of the cycle, respectively. It would thus appear that the ovarian cycle, instead of taking twenty-eight days to complete its course, has become shortened and the endometrium simply acts in correlation.

Schroeder [9] has pointed out that some patients who menstruate twice a month may have bleeding at the

8. Hitschmann, F., and Adler, L.: Der Bau der Uterusschleimhaut des geschlechtsreifen Weibes mit besonderer Berücksichtigung der Menstruation, Monatschr. f. Geburtsh. u. Gynäk. **27**: 1, 1908.

9. Schroeder, R.: Die Pathologie der Menstruation, in Halban and Seitz: Biologie und Pathologie des Weibes, Berlin and Vienna, Urban & Schwarzenberg **3**: 921-1024, 1924.

time of ovulation comparable to that found accompanying estrus in some animals,[10] and that this may be confused with menstruation, which really takes place only every four weeks. This possibility is suggested in one patient of this group, who complained that her periods had occurred every two weeks for the past six years. A curettage was performed on the sixteenth day of the cycle, at a time when she had slight bleeding from the uterus. The endometrium presented the usual appearance of late proliferation and showed no abnormality besides a few dilated veins near the surface. In the other two patients of this group who were bleeding at the time of operation, however, the normal picture of desquamation was found.

Since the cyclic changes of the endometrium have been demonstrated, it has been recognized that under certain pathologic conditions the histologic picture may not correspond to the phase one would expect from the menstrual history (Schroeder,[11] van der Hoeven,[12] Hitschman and Adler,[13] Seitz [14]). Seitz states that two main types of this disturbance may be encountered: first, the endometrium may show a stage of development not in keeping with the phase of the cycle one would expect from the clinical history (*Phasenverschiebung*), and, secondly, the same specimen may show different fragments which correspond to different phases (*ungleichartige Schleimhäute*).

There are two patients in this series who present this condition, and no other factor could be found to account for their symptoms. The first was a woman, aged 28, never pregnant, with previously regular menses, who stated that her last menstrual period began Feb. 20, 1929, and the bleeding continued until March 17. A diagnostic curettage was performed March 19, at the time when normal menstruation was again due. Instead of presenting the appearance of desquamation or of secretion such as one would expect from the history, the endometrium in general conformed to the picture of the midproliferative phase, and the only other abnormality was a striking increase of collagen fibrils in the stroma (fig. 4).

The second patient was a woman, aged 24, who had had a full-term baby eight months previously. She complained that she had had bleeding for three weeks prior to her admission to the hospital and this had occurred following a period of amenorrhea of three months' duration. The endometrium was of great interest because it conformed to the normal throughout, but in some areas it corresponded to a well developed stage of secretion, whereas other fragments in the curettings showed an early proliferative phase.

MECHANISM OF BLEEDING IN THE ENDOMETRIUM

The actual mechanism of bleeding in the endometrium may be considered under two heads, bleeding per rhexis and bleeding per diapedesis. The first of these two processes, that is, bleeding as a result of an actual injury to the vessels, is the more important and may be brought about in one of several ways. In the first place, the desquamation that occurs at the time of menstruation is found in an endometrium which has undergone a premenstrual preparation, and is a phenomenon that has certain definite histologic characteristics. Secondly, there is a more localized process, seen for example in hyperplasia endometrii, in which one finds a necrosis of smaller or larger areas of the endometrium. Thirdly, bleeding may occur from an isolated superficial vessel. Finally, small pools of blood may form beneath the surface as a result of the rupture of a deep vessel, leading to a loss of continuity and the formation of an open wound.

In this connection, the studies of von Mikulicz-Radecki [15] are of great importance. This author has examined the uterine cavity in a large series of patients with functional bleeding, by means of a viewing instrument, a "hysteroscope." He was able to demonstrate that in essentially all cases the bleeding came either from defects in the surface of the endometrium or from isolated blood vessels. The former were noted especially in cases of hyperplasia endometrii and the latter in women past the menopause in whom the histologic examination of the mucosa showed an atrophy.

It has long been assumed that bleeding from the endometrium may occur by a process of diapedesis; in fact, this explanation is still held by some authors to account for the hemorrhage of menstruation. The question is much more complicated than it at first seems, and little is known as yet regarding the physiology of the endometrial capillaries and the factors that may influence them in such a way as to produce a diapedesis of red blood cells in a quantity sufficient to appear as a profuse uterine hemorrhage. When this type of bleeding occurs it is probably frequently accompanied by injury to the endometrium and the formation of tissue defects, so that there is really a combination of bleeding per diapedesis and bleeding per rhexis.

SUMMARY

In a series of ninety patients presenting some form of abnormal uterine bleeding and the absence of gross pelvic lesions, fifty-seven were of the childbearing age and thirty-three were in the climacteric or preclimacteric period.

The clinical observations were grouped into six categories as follows: (1) regular four-week menstrual cycle but with a prolonged and profuse flow; (2) menses occurring at irregular, usually shortened, intervals; (3) completely atypical irregular bleeding with no relation to the menstrual cycle; (4) continuous bleeding setting in following a previously normal menstrual cycle; (5) menstruation becoming progressively more profuse or irregular and ending finally in continuous or atypical irregular bleeding; (6) bleeding following a period of amenorrhea.

The histologic examination of the endometrium showed the following changes: glandular hyperplasia of the endometrium, forty-nine cases; endometrial polypi, three; simple hypertrophy of the endometrium, two; endometritis, seven; atrophy, five; normal endometrium, twenty-four.

Hemorrhage from the endometrium may be brought about by (*a*) the process of desquamation; (*b*) the occurrence of localized areas of necrosis; (*c*) the rupture of isolated blood vessels; (*d*) injury to the endometrium following the rupture of deep vessels, and (*e*) a process of diapedesis.

10. Recent investigations on this subject have been conducted by Hartmann, C. G.: The Homology of Menstruation, J. A. M. A. **92**: 1992 (June 15) 1929.

11. Schroeder, R.: Beiträge zur normalen und pathologischen Anatomie des Endometriums, Arch. f. Gynäk. **98**: 81, 1912.

12. Van der Hoeven, P. C. T.: Die Schleimhaut der Gebärmutter, Arch. f. Gynäk. **95**: 648, 1912.

13. Hitschmann, F., and Adler, L.: Ein weiter Beitrag zur Kenntnis der normalen und entzündeten Uterusmucosa, Arch. f. Gynäk. **100**: 233, 1913.

14. Seitz, A.: Über anatomische Befunde am Endometrium bei Meno- und Metrorrhagien, Ztschr. f. Geburtsh. u. Gynäk. **83**: 668 (July) 1921.

15. Von Mikulicz-Radecki, F.: Weitere Erfahrungen mit der Hysteroscopie, insbesondere beim Studium des Endometriums, Zentralbl. f. Gynäk. **53**: 258 (Feb. 2) 1929.

ABSTRACT OF DISCUSSION

DR. HENRY SCHMITZ, Chicago: The trend in medicine today is to base diagnosis on pathologic physiology and pathology. If the pathology of idiopathic uterine hemorrhage is coordinated with the physiologic pathology, then a diagnosis of idiopathic uterine hemorrhage is much facilitated. For this purpose we classified the hemorrhages as follows: Hypermenorrhea means menstruation which is too profuse and lasts too long and is caused either by a loss of tonicity of the myometrium preventing contraction or by active and passive hyperemia of the pelvic organs. Generalized hyperemia at times causes severe hypermenorrhea. Polymenorrhea signifies that the menstrual flow occurs too soon, that is, every twenty-four days or less in a patient having had a twenty-eight day periodicity prior to this occurrence. It is due to an ovarian dysfunction and hyperemia causing a disturbance in the ovulation cycle. Should the hemorrhages occur independently of the menstrual flow, then we speak of metrorrhagia, which is usually caused by a loss of continuity of the surface epithelium occurring independently of the shedding of the menstrual decidua. In a series of 108 cases of idiopathic uterine bleeding, there were twenty-six hypermenorrheas, forty polymenorrheas and forty-two metrorrhagias. The cases reported by Dr. Fluhmann could be arranged similarly, and the respective numbers would be twenty-four hypermenorrheas, thirty polymenorrheas and thirty-six metrorrhagias. Dr. Fluhmann found forty-nine cases of glandular hyperplasia of the endometrium, while we found nineteen cases. Novak, also, had a higher number. Therefore, the high frequency of this condition in idiopathic uterine hemorrhages should be recognized. Such cases are usually characterized by metrorrhagia, and the bleeding ensues from ulceration and breakdown of a persistent menstrual decidua with a persistent graafian follicle. There were three cases of polypoid hyperplasia and pedunculated polypi in our series, the same number as in Dr. Fluhmann's series. They are of importance, as bleeding will continue until they are removed. Normal epithelium was found by Dr. Fluhmann in twenty-four cases and by us in twenty-two. Bleeding is usually due to loss of contractility of the myometrium resulting from atonicity of the myometrium.

DR. LUDWIG A. EMGE, San Francisco: There has been so much confusion in the terminology of endometrial disturbances that Dr. Fluhmann's effort to clarify the situation is most commendable. I am not quite certain whether one should include endometritis and polypi under the term "idiopathic." I rather feel that this term, which at best cannot mean anything but our lack of knowledge as to the cause of the disease, should be applied only to endometria which show neither inflammation nor isolated proliferative changes. While it is true that Dr. Fluhmann's study does not help us in any way to arrive at a preoperative diagnosis, it nevertheless illuminates the diversity of types of endometrial disease found in uterine bleeding of nonneoplastic origin. If we exclude the inflammatory pathologic changes we are left with an endometrial disturbance which simply expresses the end phase of a still unexplained functional disturbance. We may suspect its immediate origin to be a disturbance of the thyropituitary-ovarian interchange. The intermediate effect is the resulting disturbance of the follicular apparatus of the ovary, which may manifest itself in the production of one or more persisting follicles possessed of a prolonged stimulating action on the endometrial cycle, or in faulty corpus luteum behavior, or both. The vascular manifestation, that is, bleeding, is therefore only the end-result. Hyperplasia of the endometrium, as Dr. Fluhmann has pointed out, is not a constant factor and may constitute only a phase in the entire process, for we know that many hyperplasias found accidentally show no signs of bleeding. We must never lose sight of the fact that morphologic studies deal only with whatever is going on in the tissue at the moment of fixation. Hence, the diversity of opinions on many morphologic interpretations have ultimately been found to constitute only phases of the same process. So far, we have no certain diagnostic means for this condition except the curet and the microscope. The hysteroscope described by various authors is one of those problematic instruments which remain a clinical plaything of limited usefulness. Basal metabolic and calcium studies nearly always yield normal results, except in thyroid disturbances. When we have learned more about the pituitary-ovarian interchange, we may hope for some help from the laboratory. At the same time we perhaps shall also come into the possession of such active anterior pituitary and lutein substances as will enable us to check the endometrial bleeding in the same manner as thyroid substances have done. Meanwhile, radium and the roentgen ray offer us the best means of treatment in persisting bleeding.

DR. C. F. FLUHMANN, San Francisco: The problem of abnormal uterine bleeding is no longer one limited to the free use of the curet but must be approached from a physiologic standpoint. However, it would seem futile to hope that the solution can be reached before a proper understanding of the physiology of normal menstruation has been attained.

Special Article

DO ADULTS NEED VITAMIN D?*

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The answer to the question as to the adult's need for vitamin D clearly is, "Yes, but not so much as the growing organism." Short laboratory experiments on normal men and women have not as yet shown any effect from adding or withdrawing vitamin D, but in certain abnormal conditions its influence has been demonstrated, especially in a serious disease of the bones, osteomalacia. The latter disturbance, in one of its manifestations at least, appears to be a deficiency disease traceable to lack of vitamin D or light.

EXPERIMENTS ON NORMAL MEN AND WOMEN

The three following experiments, performed on normal men and women, were planned so that an influence from giving vitamin D might have been expected, but all of them showed only negative results.

Blood Phosphorus.—Some healthy young men in England were found to show a certain amount of seasonal variation in the inorganic phosphorus of the blood, similar to that found in children not receiving antirachitic treatment. The value was low in winter (about 2.9 mg.) in contrast to a high value in summer (about 4.0 mg.). Yet unlike the effect with children the winter low figures were unchanged when the men were given irradiated ergosterol for twenty-one days or when their bodies were irradiated directly with a carbon arc lamp for sixteen days. Whether the elevation in summer is due to the increase in sunlight, as one tends to suppose, is made somewhat doubtful from the experiments.

Balance Experiments.—It is not illogical to think, from analogy with children's balance experiments, that adults brought into slight negative calcium and phosphorus balance by a diet low in the elements would have this negative balance changed to positive by antirachitic treatment. Such, however, has not been found to be true, at least during the few days or weeks of the laboratory observations.

In our laboratory, two groups of women, seven in all, served as subjects for calcium and phosphorus balance experiments including in one period a fairly large quantity of ordinary rolled oats and in the other the same amount of irradiated rolled oats, supplied by the courtesy of the Quaker Oats Company and already

* This article is a chapter from the book "Ultraviolet Light and Vitamin D in Nutrition," to be published shortly by the University of Chicago Press.

proved by rat experiments to have decided antirachitic potency. All the subjects curtailed their calcium intake to from 0.23 to 0.275 Gm. a day, so as to get themselves into slight negative balance in the hope that the vitamin D of the irradiated cereal would check the loss. For every woman, however, the negative balances were almost exactly the same on the two diets, the average losses of calcium being —0.10 Gm. and —0.14 Gm. a day for the first group and —0.11 Gm. and —0.12 Gm. for the second group, shown in the accompanying table. The phosphorus balances, on a higher phosphorus intake, showed a little more fluctuation, but still no consistent differences on the two kinds of cereal.

The first group ate considerable potato with the result that the diet had a somewhat basic residue equivalent to about 6.5 cc. of excess normal alkali a day; the second group substituted bread for the potato, giving an acid residue equal to about 5.2 cc. of normal acid, but this change made no difference in the results.

Calcium and Phosphorus Balance with Plain and Irradiated Rolled Oats (Grams per Day)*

	Calcium				Phosphorus			
	Ordinary Rolled Oats		Irradiated Rolled Oats		Ordinary Rolled Oats		Irradiated Rolled Oats	
Subject	Intake	Balance	Intake	Balance	Intake	Balance	Intake	Balance
I.....	0.275	—0.10	0.26	—0.19	1.21	+0.12	1.26	+0.04
II.....	0.275	—0.12	0.26	—0.13	1.21	+0.02	1.26	+0.04
III.....	0.275	—0.07	0.26	—0.09	1.21	+0.08	1.26	—0.10
Av...	0.275	—0.10	0.26	—0.14	1.21	+0.07	1.23	—0.01
IV.....	0.23	—0.05	0.24	—0.04	1.00	+0.10	0.91	+0.01
V.....	0.23	—0.07	0.24	—0.09	0.94	—0.19	0.95	—0.08
VI.....	0.23	—0.18	0.23	—0.20	0.94	—0.23	0.97	—0.10
VII.....	0.23	—0.44	0.25	—0.15	0.92	+0.06	0.95	—0.01
Av...	0.23	—0.11	0.24	—0.12	0.95	—0.07	0.95	—0.05

* Unpublished data from the master's thesis of Anna Jaros, and from work by Misses Gillum, Lattin, Pittman and Wing, and Mrs. Elder, Department of Home Economics, University of Chicago.

In another somewhat similar experiment elsewhere, a young man was put on an acidotic diet low in calcium and phosphorus, and as a result he was losing minerals from his body; yet giving him cod liver oil and irradiating his body were without effect in lessening his almost constant negative balances (Hart et al.).

These few short-time experiments with negative results are not completely convincing in regard to possible advantage from cod liver oil dosage. Nor are the few animal observations listed later. The experience of some nutrition workers, notably Dr. McCollum and Dr. Daniels, leads them to advise regular consumption of cod liver oil by adults during the winter months with the hope of maintaining vigor and lessening susceptibility to colds. It may be that the advantage which they see comes from the vitamin A of the oil more than from the D. Very interesting would be a prolonged series of balance experiments on adults taking cod liver oil for several months, but the difficulty in such a series would be to keep conditions constant throughout.

Pregnancy and Lactation. — That vitamin D has decided influence in pregnancy and lactation, for both the mother and the offspring, human or animal, has already been shown in the preceding chapter. It is in such conditions, when there is the special biologic demand for the calcium and phosphorus, that the vitamin is most effective.

EXPERIMENTS IN ADULT ANIMALS

In adult animals there are a few experiments which seem to show a favorable effect on calcium and phosphorus metabolism from giving vitamin D, but there is also some evidence that much vitamin D may bring about increased excretion of calcium in adults. Greenwald and Gross, at the Roosevelt Hospital, New York, have recently reported feeding one normal dog a diet low in calcium for several weeks and then changing the 35 cc. of maize oil in the diet for the same quantity of cod liver oil. The calcium in the feces for the following twelve days gradually increased till it was much higher than the average on the maize oil—as much as 37 per cent higher, according to one method of computation. The nitrogen output diminished slightly and the phosporus remained almost unchanged. If, however, allowance is made for the amount of phosphorus which might be expected to be retained in protein with the nitrogen retained, it is seen that the calcium excretion really was accompanied by phosphorus excretion, approximately in the proportion of 2 to 1. This ratio is that in bone and also in the increased excretion brought about by the administration of parathyroid extract. The probable relation between the parathyroid and vitamin D is discussed later.

Two earlier experiments not in accord with these results are adversely criticized by Greenwald and Gross —Sjollema's, which showed a favorable influence of cod liver oil on the calcium retention of a mature rabbit, and Yoder's, with increased calcium and phosphorus retention by adult rats on a rickets-producing diet when cod liver oil was added or the animal irradiated.

It thus looks as if short time withdrawal of vitamin D or its addition in moderate amount has no measurable effect on the calcium and phosphorus metabolism of the adult but that addition of large amounts of it may possibly do harm.

ABNORMAL CONDITIONS

The negative results in adults, it should be repeated, have been obtained in normal, healthy individuals. In more or less abnormal or unusual conditions, when the body has special need for calcium, the reports are different. The healing of fractures, for example, has been hastened by the taking of cod liver oil or by irradiation. Carious teeth in an adult have been found to be decidedly improved by giving irradiated ergosterol. Mrs. Mellanby reports one such case, in a young woman about 18 or 20 years old, whose wisdom teeth were decaying rapidly but whose other teeth were good. Treatment with an irradiated ergosterol preparation appeared to stop the decay of the wisdom teeth. Other adult cases are under investigation.

OSTEOMALACIA

Osteomalacia, a serious but comparatively rare disease of adults in the same category as rickets in children, involves generalized softening of the bones. It is found chiefly in pregnant and lactating women and in old people, especially in famine districts or where peculiar religious or social prohibitions keep women indoors away from light.

An appalling account[1] of it in India is given in Kathleen O. Vaughan's recently published Purdah System and Its Effects on Motherhood. In Kashmir, according to this author, and particularly in Srinagar, which lies in a deep valley in the mountains, the Purdah system affects the better class of young girls from the age of 8 or 10 years until after marriage and the birth of one or two children. Because of religious and social tabus the girls are more or less confined to the house

1. Quoted in part from a review of the book in the British Journal of Actinotherapy **3**: 97, 1928.

so as to be secluded from all men except their brothers or husband, and are closely veiled when they do go out. At childbirth the women are kept in dark, unventilated rooms, often for as long as forty days. The valley is shaded from the sun even in summer and especially during the long, cold winters. Osteomalacia is common among these women, usually beginning with the first pregnancy, and is worse in winter and early spring. Women of the lower class who are out all day in the open air are of fine physique and entirely free from the disease. It is unknown, too, among the men and boys. That absence of light is a chief cause of osteomalacia finds confirmation from other parts of India. In Bombay, for example, women of the weaver class who live in back rooms on the ground floor of eight or ten story buildings suffer badly from the disease, while it is uncommon among the Parsee girls and women who go out freely from childhood.

In China, too, especially in the northern and western portions, the disease is strikingly common in women of childbearing age. There, physicians are attacking it as a dietary deficiency disease due in part to recurring famine and unwise diet, which consists largely of cereals (millet) and a limited amount of vegetables, without milk, meat or eggs. It may be cured or prevented by improving the food and giving cod liver oil. At Peking Union Medical College several calcium and phosphorus balances have been observed in four patients before and after treatment. Three showed negative calcium balances at the beginning, and one, who had had a little previous treatment, a slight positive balance. Cod liver oil alone improved the balance, cod liver oil and a calcium salt much improved it, and olive oil and a calcium salt did not help. The blood calcium and phosphorus, low at first, were also raised, and the clinical gain was great—all good evidence that in China the disease seems to be especially of dietary origin owing to low intake of calcium and vitamin D. Limited exposure to light also seems to be contributary, since the women who work in the fields are much less apt to have osteomalacia than the middle class women who stay indoors.

The serious famine conditions in Vienna after the war brought many cases known as "hunger osteomalacia." The first were reported in the late autumn of 1918 and others through 1920, with increase in the winter and diminution in the summer. The years 1918 to 1920 were a period of great food deprivation in Vienna. The disease, as might be expected, occurred chiefly among the poorest inhabitants and especially the middle aged and old people of both sexes. The symptoms were pain in the sacral region and in the ribs on compression, a waddling gait, difficulty in mounting stairs, occasional tetany, and in a few cases spontaneous bone fractures. The roentgen ray showed osteoporosis. The successful treatment consisted in improving the diet and giving cod liver oil.

A recent account of two cases of senile osteomalacia reports distinct improvement, with increase of the serum calcium following treatment with irradiated ergosterol.

Osteomalacia, it may therefore be concluded, is a deficiency disease due largely to a faulty diet and especially to lack of vitamin D and light. It is also occasionally found under less abnormal conditions of living and then, according to medical reports, seems to be associated with tumor or other abnormality of the parathyroids. That the parathyroid and vitamin D have a connection is discussed later.

THE PARATHYROIDS AND VITAMIN D

The parathyroids have for some time been known to affect calcium metabolism and so has vitamin D. Only rather recently have efforts been made, with partial success, to show the relation between the two influences and to reconcile some of the numerous apparent contradictions. The article by Greenwald and Gross just quoted helps greatly.

These authors and others before them set forth the view that the parathyroid hormone controls the internal calcium equilibrium. Removal of the parathyroids lowers the serum calcium and the calcium excretion; that is, the calcium is not mobilized from the bones or elsewhere. Administering parathyroid extract to animals or human beings increases serum calcium and mobilizes more calcium, which is held in the blood because of its increased calcium dissolving power. If the administration of parathyroid is prolonged, the calcium excretion is increased, so much being excreted that it must be drawn from the bones—enough so that the microscopic appearance of the bone trabeculae is decidedly changed.

Abnormalities of the parathyroid, such as parathyroid tumor, have been shown to bring about high blood calcium and high excretion of calcium, leading to continued negative calcium balance. Some cases of osteomalacia in this country in patients whose diet and light exposure seem to be normal have been traced to such a tumor, and have been cured by its operative removal.

Cod liver oil probably exerts its effect on calcium metabolism by stimulating the parathyroid tissue to increased activity, more parathyroid hormone being produced. Partial proof of this relation is found in Greenwald and Gross's experiment on the adult dog just described. The cod liver oil had just the effect of increasing calcium excretion that parathyroid extract would have had. Further proof is supplied by Hess, who quotes the following experiment: A monkey having a low blood calcium as the result of several months on a calcium deficient diet was fed large quantities of irradiated ergosterol, which promptly raised the calcium of the blood to normal. After the parathyroid glands had been removed, however, the blood calcium fell once more and could not be raised by any amount of irradiated ergosterol.

It is not surprising, in view of this relationship, that growing animals and adults should react differently because of the great differences in the calcium equilibriums in their bodies. The young, with their constant need of calcium for bone growth, can dispose of the element almost as fast as they get it, so that stimulating the parathyroid and so increasing the calcium of the blood means increased retention. Adults, on the other hand, have only a smaller, steadier need for the mineral, so a temporary increase in the blood means decreased retention and actual loss. To quote Greenwald and Gross:

> If we assume that the parathyroid hormone, directly or indirectly, increases the calcium-dissolving power of the plasma and that cod liver oil stimulates the parathyroids, it may readily be seen that the addition of cod liver oil to a diet rich in calcium that is being fed to young animals, in which calcium deposition is rapid, or to lactating animals, in which also large amounts of calcium are removed from the blood, might lead to an increased absorption of calcium; whereas the same addition, particularly when combined with a calcium-deficient diet, in the case of adult and nonlactating animals, in which there is no biologically imperative demand for calcium, would lead to an increased excretion of calcium.

University of Chicago.

Council on Pharmacy and Chemistry

AT ITS LAST SESSION THE COUNCIL ON PHARMACY AND CHEMISTRY ESTABLISHED A COMMITTEE ON NONMEDICINAL FOODS TO PASS ON ALL FOOD PRODUCTS FOR WHICH HEALTH CLAIMS MIGHT BE MADE. THE COMMITTEE HAS PREPARED A SERIES OF RULES UNDER WHICH IT PROPOSES TO OPERATE. THE RULES WHICH FOLLOW HAVE BEEN APPROVED BY THE COUNCIL ON PHARMACY AND CHEMISTRY.

W. A. PUCKNER, Secretary.

COMMITTEE ON FOODS

FORM OF SUBMISSION

Any product which it is desired to have considered for "Accepted Foods" should be presented to the Committee on Foods, American Medical Association, 535 North Dearborn Street, Chicago, and except in special instances should be accompanied by eight trade packages, eight sets of descriptive advertising, circulars, etc., and a description of the article giving its constituents and a brief outline of its process of manufacture.

RULES GOVERNING ACCEPTANCE

The rules for the acceptance of foods are patterned on the principles of New and Nonofficial Remedies, with such modifications and relaxations as are made necessary by the different nature of the products concerned and by the importance of expediting the business of the committee without interfering with the protection of the public against harmful and misleading practices.

All foods, nonmedicinal in character, for which health claims may be made or which are advertised in medical journals, shall come within the scope of the Committee on Foods.

Foods shall not be accepted for inclusion unless their composition is made known, the statement of composition including the approximate amounts of substances incorporated and, *when deemed necessary by the committee,* more detailed statements as to protein, carbohydrate, fat, mineral salts or vitamin content. Where claims are made of special virtues for any ingredient, the quantity of that ingredient must be made known if the committee so requires. Such statements may, at the discretion of the committee, be made a part of the published report.

The rules of the Council regarding advertising of proprietary remedies shall not apply to foods considered by the committee.

No product will be accepted or retained concerning which the manufacturer or his agents make false or misleading statements as to source, raw material from which made, or method of collection or preparation.

No product will be accepted or retained concerning which the manufacturer or his agent make unwarranted, exaggerated or misleading statements as to its value for health or nutrition or any statement which misrepresents the product.

Proprietary names should, if possible, be framed to indicate the nature or composition of the product or its important ingredients; but a name will be recognized provided it is not misleading, does not suggest diseases or medicinal uses, and is not otherwise in conflict with public interest. These restrictions may be waived in the case of names which were established through usage before the publication of these rules.

If the article is patented—either process or product, or both—the number of such patent or patents must be furnished to the committee. Furthermore, if the name of a product is registered, or the label copyrighted, the registration (trademark) number and a copy of the protected label should be furnished to the committee.

The committee will not accept or retain, if already accepted, the products of a firm if, in the opinion of the committee, the policies of such firm are clearly detrimental to the welfare of the public.

ACCEPTED FOODS

Reports on products considered, having received approval of the committee, may be published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION under the section devoted to the Council on Pharmacy and Chemistry with a special heading, "Committee on Foods." At the end of each year, all reports shall be assembled in book form, with the reports of all products accepted preceding the reports of all products rejected. This book shall have the title "Accepted Foods."

Following the acceptance of a product by the Committee on Foods and so long as the product is continued in good standing, the manufacturer of any product is authorized to affix to that product as a portion of the label and to use in advertising the insignia adopted by the Committee on Foods, as suitable for identifying an accepted product.

REPORT OF THE COMMITTEE ON PERNICIOUS ANEMIA OF THE HARVARD MEDICAL SCHOOL

At the request of the Committee on Pernicious Anemia of the Harvard Medical School the Council has authorized publication of the following statement.

W. A. PUCKNER, Secretary.

In 1926, Minot and Murphy reported their first observations, made in hospitals affiliated with the Harvard Medical School, that pernicious anemia could be treated effectively by a diet rich in liver. Their studies demonstrated that under these circumstances marked clinical improvement occurs with regularity, but that large amounts of liver are necessary for proper influence on the disease. Further, the liver has to be taken each day indefinitely in order to maintain the patient in the best possible health.

This discovery opened to investigation the nature of the active principle in liver effective in the treatment of pernicious anemia. Its isolation was undertaken from a purely scientific point of view by Cohn and his collaborators in the Department of Physical Chemistry of the Harvard Medical School. In the absence of any condition that could be experimentally produced in animals known to be identical to pernicious anemia, the effectiveness of the isolated fractions were tested by Minot and his associates by feeding them to patients with the disease. Early in this investigation a fraction of liver was extracted and concentrated which was found to contain in small compass the activity which had previously been demonstrated for large quantities of whole liver.

The collaboration informally begun between clinician and chemist now required the further collaboration of the manufacturer. In May, 1927, the Committee on Pernicious Anemia of the Harvard Medical School was organized to study the properties and to determine the clinical value of the fractions of liver that were being extracted, and to determine in what way a satisfactory product could be made available for general use. One of these was soon found to be readily prepared as a powder, and it seemed desirable to obtain larger amounts of this product than could readily be furnished by a research laboratory, at first for clinical study, and eventually for general distribution.

To this end, the offer of the firm of Eli Lilly and Company of Indianapolis to manufacture under the direction of the committee one of the extracts developed in the laboratory of physical chemistry was accepted. There were, of course, neither directly nor indirectly any financial arrangements made between the committee and Eli Lilly and Company. The function of the committee was merely to supervise the production on a large scale of a suitable extract of known potency until such time as the medical profession should have become accustomed to its use. The process was readily adapted to a commercial scale, in part as the result of a suggestion from the Connaught Laboratories of the University of Toronto, and for five months a satisfactory product was manufactured and tested by twelve clinics in the United States, one in Canada, and one in England, the services of which were proferred to the committee.

The treatment of more than 100 cases of pernicious anemia in these clinics indicated that a satisfactory product was available. The distribution of the material to the medical profession now seemed proper and desirable, and it was accepted on Feb. 4, 1928, by the Council on Pharmacy and Chemistry of the American Medical Association for New and Nonofficial Remedies, under the name of "Liver Extract No. 343."

The successive lots of the manufactured material were tested so that assurance could be given that the effectiveness of the product was maintained essentially constant. The wisdom of this precaution became only too apparent in March, 1928, when it was discovered that a few lots were somewhat weaker than the standardized product, perhaps owing to the rapid expansion of the manufacturing process to meet the increased demand for the material. The distribution of all further material was at once stopped, and all but a small amount of the material was successfully withdrawn from the distributors. Eli Lilly and Company collaborated in every way with the committee in reclaiming the material and in attempting to discover what

changes in practice might have been responsible for the loss in potency.

Material of the usual strength was again prepared almost at once and, after satisfactory clinical tests had been obtained, the product was again released for distribution. For the past year Eli Lilly and Company has regularly produced lots of material, every one of which has been shown to be clinically effective in the treatment of pernicious anemia, by a standardized process approved by the committee. It now appears proper to the committee to consider that its function of developing a reliable commercial product has been accomplished, and that it may therefore cease actively to supervise the manufacturing process.

In ceasing this supervision, the committee is acting on the belief that a period of controlled observation of the commercial process has continued sufficiently long to permit the attainment of a thoroughly practicaly knowledge of the nature and difficulties of a standardized process by a large manufacturing concern. Cooperation with a manufacturer was instituted to provide a supply of potent liver extract adequate to the needs of those suffering from conditions which could justifiably demand treatment with this specific principle of liver. The limitations of the clinical material available for testing extracts made it necessary to confine these tests to the products of one concern. The methods of preparation of effective extracts and the descriptions of their action on patients are now available in the scientific literature. Information has been communicated to scientists interested in the preparation of liver extracts, and arrangements for manufacture under the direction of foreign scientists have now been completed.

It is possibly worth while to summarize briefly the results of the experience of the two years of existence of the committee in respect to scientific advances, to commercial production, and to the testing of extracts.

Scientific Advances.—The extract which forms the basis of present commercial practice was prepared within the first two months of the investigation into the nature of the active principle effective in pernicious anemia. In the subsequent two years a great deal of additional information has been gained, which has been reported in the literature, and which renders it certain that the active principle is not protein, carbohydrate or lipoid, proteose, peptone or polypeptide.

The active principle is soluble in water and in alcohol-water mixtures over a wide range of temperatures and of acidities, and the extraction processes that have been adopted in different laboratories have varied in the order in which heat and alcohol have been employed as precipitants of inert material. In the procedure first employed on a laboratory scale, aqueous extraction was carried out in the cold near p_H 5. As a result, the larger carbohydrates were not appreciably broken down to more soluble sugars, and the characteristic liver protein remained largely undissolved near its iso-electric point. Heat was employed to coagulate soluble proteins only after extraction. One modification to a commercial scale involves heating the minced liver to 80° C, thus destroying enzymes and coagulating proteins, before extraction. This process is very convenient, but the product is far richer in carbohydrates.

In the original procedure the filtrate from the heat coagulated proteins was rendered 70 per cent with respect to alcohol, the active principle passing into the filtrate. Seventy per cent alcohol has been employed in the extraction of the active principle from minced liver in one commercial process, and appears also to have yielded a satisfactory product. The purest fractions that have been prepared are completely soluble in other organic solvents such as water, alcohol, phenol, glycerol, formamide and acetic acid, and it may be that commercial processes may be developed in which one of these more specific solvents is employed. In acid solution the active principle dissolves even in such organic solvents as chloroform and carbon tetrachloride.

Alcohol and acetone have been employed as precipitants of the active principle in neutral solution, and the first dry preparation was made by concentrating to a syrup the filtrate from 70 per cent alcohol and then pouring it into sufficient absolute alcohol to render it 95 per cent with respect to alcohol. The activity was in large part found in the precipitate, whereas the smaller sugars largely remained dissolved. That the active substance was not entirely insoluble even in 95 per cent alcohol was early realized, and recently it has been shown that the activity can be entirely extracted from a purified extract by a sufficient volume of 95 per cent alcohol, and again precipitated on concentration of the alcoholic solution. Acid alcohol is a better solvent than neutral alcohol, but the latter is a better precipitant.

Following these studies, which are being continued from a purely scientific point of view, obvious improvements in the commercial process may be expected. Thus the 95 per cent alcoholic filtrate from the active precipitate will generally contain active material, varying in amount according to acidity, volume and temperature. This activity is recoverable on neutralization and concentration. Moreover, this fraction may be so prepared as to be essentially free from blood pressure reducing substances, and thus suitable for intravenous injection. Such an extract has now been prepared on a laboratory scale.

Testing of Extracts.—Inseparable from the problem of the efficient production of the material is the problem of the proving of its suitability for clinical use. Although it is probable that faulty methods of production will not introduce toxic substances, and that the danger of overdosage is practically nonexistent, there is nevertheless a need for assurance of the effectiveness of the product. The risk to life involved in giving to seriously sick patients extracts in which confidence is falsely placed is very real, and in patients who are not at such a critical stage of their treatment the use of ineffective material, or insufficient amounts of effective material, may delay progress, or allow relapse, perhaps with well-nigh irreparable damage to the nervous system.

Until a reliable biologic method has been developed by which the clinical effectiveness of liver extracts in the treatment of pernicious anemia can be ascertained, the greatest difficulty of testing the products will remain the lack of suitable clinical material. At present it is necessary, in order to attain in any way quantitative information concerning the potency of an extract, to administer it to a patient with pernicious anemia who has not received recent treatment and who shows a considerable degree of anemia. Obviously, the number of such patients available for critical observation for a period of several days is small, and it has been difficult to carry out a sufficient number of such tests even with the much appreciated cooperation of numerous clinics.

The quantitative relationship of the number of immature red blood cells (reticulocytes) which may be expected to be produced at the onset of remission resulting from the administration of effective extracts makes it possible to compare the effect of an extract of unknown potency with that of an extract of known potency or with liver or other substances. This is possible because a maximum response occurs in almost all instances if complications do not interfere following the injection of suitable extract derived from approximately 400 Gm. of liver. A larger dose will not increase the response, and the responses to be expected from submaximal doses have now been systematically investigated. Accordingly, by giving such an amount of an untested extract as should be just maximal or slightly submaximal, any loss of potency will manifest itself by a smaller reticulocyte response. No quantitative idea of the potency of extracts can of course be obtained if a too great dosage is employed, if other effective substances have modified the reaction, or if the presence of infection or other complication renders the patient unsuitable. The present necessity of employing suitable patients instead of chemical or biologic reactions in order to test extracts is naturally highly undesirable but appears to be at present the only way in which the safety of a large number of other patients in the hands of the medical profession can be assured. Bad results in the treatment of pernicious anemia by means of extracts of uncertain or inadequate potency have been observed, and render it imperative to have quantitative knowledge regarding dosage. The distribution of extracts of uncertain potency from various sources will undoubtedly continue and be a potential danger to the community until a simple method of standardization is found, or unless some limitation of the number of sources of these products is imposed.

Because one lot of a product has been effective it does not prove that subsequent lots will be satisfactory, as the experience of the committee under the best conditions at one time demonstrated. Furthermore, the elaboration of better methods of production is at present under the greatest embarrassment because of the necessity of checking each modification of a process to insure its effectiveness. If for the present extracts are to be produced by numerous commercial houses, the most rigid adherence to the recognized methods of preparation must be enjoined on those who are distributing to the community a product which, when carefully prepared, is capable of alleviating suffering and maintaining health. (Signed)

WALTER B. CANNON, Chairman.
WILLIAM B. CASTLE.
EDWIN J. COHN. EDWIN A. LOCKE.
ELLIOTT P. JOSLIN. GEORGE R. MINOT.

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SATURDAY, OCTOBER 12, 1929

LEGALITY OF EXCLUSION OF PHYSICIANS FROM PRACTICE IN HOSPITAL

In a recent decision of the circuit court, Genesee County, Mich., Judge Glenn C. Gillespie upheld the right of the officers of a charitable hospital to determine who should be permitted to treat patients in the institution. In his decision he stated some of the principles that should guide the officers in their action. In passing on the case before the court, however, he held that procedure had not been in accordance with the principles [1] which he set forth.

The decision was rendered in a suit brought by Dr. John H. Houton of Flint, Mich., a physician authorized to practice medicine and surgery. Dr. Houton had been denied the privilege of performing a major surgical operation in the Hurley Hospital in Flint. The hospital is a charitable hospital, owned by the city, the management and control of which is delegated by the city charter to a board of hospital managers. For more than twenty years the hospital was operated by the board and any licensed practicing physician was permitted to use its facilities for the treatment of his patients. In the latter part of 1918, however, the board undertook to vest the active management and control of the hospital in an executive committee and to limit to a fixed staff the privilege of practicing in the institution. It empowered the executive committee to investigate proposals for membership on the staff and make recommendations to the board of managers for appointments to it, and to list the operations to be recognized as major operations and designate those members of the staff who might perform major operations in the hospital. According to the record, the executive committee appointed a general staff, consisting of all members of the medical profession in Genesee County. It prepared the required list of major operations and named thirty-one members of the staff, who alone could perform them in the hospital. Stated standards were not adopted by the committee to guide it in the selection of these physicians; an examination was not held; blanks or questionnaires were not submitted to the members of the staff, to elicit information concerning their special fitness for surgical work. The committee, in making selections, relied on the knowledge of its members concerning the experience, training and qualifications of the members of the staff. Dr. Houton was among the physicians named on the general staff of the hospital, but he was not chosen as one of those permitted to perform major operations. When later he took a patient to the hospital for a major operation, the superintendent refused to permit him to perform it. Dr. Houton filed a bill to restrain the city of Flint and the board of hospital managers from establishing and enforcing any rule preventing the free use of the Hurley Hospital by him and other licensed physicians, or any rule that would prevent him or any other taxpayer from having the use of the hospital for necessary operations when attended by a licensed physician of his own choice.

While the courts of Michigan are committed, said Judge Gillespie, to the rule that the trust funds of a public charitable hospital cannot be used to recompense beneficiaries of the hospital who are injured by negligence in its administration, it is nevertheless incumbent on the board of managers to use reasonable care in the selection of employees. The failure of the executive committee to include Dr. Houton in its list of approved surgeons and the subsequent refusal of the hospital superintendent to permit him to perform a major operation was not a denial of the equal protection of the law and did not involve a constitutional question. If the courts held that the authorities of a public hospital have no right to make reasonable rules, and that every licensed physician must be admitted to unlimited practice on the same basis, an undue burden would be imposed in many cases on the hospital and on the taxpayers whose money is used for the support of the hospital. The management of a hospital may make such reasonable rules as are necessary, even though the result is to exclude from practice in the hospital physicians who do not possess the necessary qualifications. In a private hospital, such rules may exclude arbitrarily all practitioners who are not members of the staff. In a public hospital, however, the rules must be reasonable. The courts cannot state in advance the exact nature and extent of the permissible limits of such rules. It is clear, however, that they must be rules that are necessary to enable the institution better to fulfil its obligations to the community. The rules must not be discriminatory but must apply uniformly to all physicians in the same class; they must not preclude any physician from the reasonable practice of his profession; they cannot contravene any provision of the medical practice act; they must be based on fixed and reasonable standards and not on the arbitrary judgment of the staff or the board of managers. Within these limits and others like them, the board of managers of a

1. Flint (Mich.) Daily Journal, July 26, 1929, p. 23.

public hospital has the right to make rules. It may prescribe uniform standards and qualifications based on educational fitness and on previous training and experience which must be possessed alike by all physicians admitted to unlimited practice in the hospital.

The authority to make and enforce rules must be exercised by the proper officers of the hospital. The exercise of this authority is subject always to the well settled rule that, where the right to exercise discretion or judgment is delegated for the accomplishment of a given end, those to whom that right is granted cannot transfer it to others and thus substitute the discretion and judgment of some one else in place of their own. In the case before the Michigan court, the city charter delegated the general supervision and the executive management of the Hurley Hospital to the board of hospital managers, but the board, when it undertook to reorganize the hospital according to the staff plan, assumed to delegate to an executive committee certain of its own authority; namely, the power to make and modify rules; to investigate proposals for membership to the general staff; to list procedures known as major in character and designate those members of the general staff properly qualified and who should be allowed to practice such procedures in the hospital; and to hold hearings, and, subject to the approval of the board of hospital managers, to revoke such privilege. The committee, without adopting any uniform standards by which the qualifications of physicians were to be judged, selected certain physicians who were deemed qualified to perform major operations and barred from such practice other physicians who were not on the approved list. The rules did not provide for appeal from the decisions of the committee, although a physician whose name had once been placed on the list was entitled to a hearing before the board of managers before his name was removed. It is apparent, said Judge Gillespie, that the board had no power to delegate such arbitrary powers to the executive committee. The committee had no authority to select arbitrarily the physicians who alone would be permitted to do major surgery in the hospital, and the board was without authority to subject a regularly licensed physician to such arbitrary action. For the reasons stated, the court held that Dr. Houton was entitled to a decree restraining the city of Flint and the board of hospital managers from enforcing the plan of organization then in force and the rules adopted by the executive committee. The decree, however, said the court, will not prevent the adoption of such other rules for the operation of the hospital, in conformity with the decision of the court, as may be deemed necessary to carry out properly the purposes of the hospital. The decision is one which may well guide officers of other hospitals in assuring themselves that all physicians using the institution are competent for the work they attempt to do.

THE COMMITTEE ON FOODS OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The pages of popular magazines, of newspapers and of medical journals contain an increasing number of advertisements of food products. The growers, producers and distributors of such products have learned the value of the health appeal. Great campaigns are being promoted by cooperative organizations in favor of meat, of flour, of vegetables, of fruits, and of other natural foods. The vitamin is the most interesting and mysterious substance that has appeared on the medical scene, and the alert copy writers have not failed to dramatize the interest that it has awakened in both the medical profession and the public. Malted milks under various disguises are vaunted as tonics and as sleep producers. The medical profession, awake to the newer knowledge of physiology, is turning its interest increasingly to the promotion of health and to the use of properly selected foods for such purposes. Moreover, diet is recognized as of great importance in the control of diseases affecting the digestive tract and for the management of the degenerative diseases: diseases of the kidneys and of the circulation. As these trends in medical practice have developed, the need of some body to express judgment of food products and food advertising, in the same way that the Council on Pharmacy and Chemistry considers medical preparations, has become apparent. The Council has therefore created a special committee on foods. The preliminary form of the rules under which this committee will function appears on page 1144 of this issue of THE JOURNAL.

The manufacturers of food products, distributors and all others interested in the promotion of natural food substances or of modified foods, for which claims are made in relation to the promotion of good health, will be asked to submit to the committee the products and the advertising material used in advancing their sale. If a product is of known composition, if the claims made for it are justified by the composition and by modern knowledge of digestion and assimilation, if the advertising is up to the standards set by the Council on Pharmacy and Chemistry, advertisements of the product will be permitted in the publications of the American Medical Association, the product will be listed in the book on foods similar to New and Nonofficial Remedies, and the manufacturers will be permitted to use a symbol indicating that the product has been accepted by the committee for listing in the book of foods. If the product cannot reach the standards set forth, a report will be published as is done for drug products, and advertising of the preparation will not be permitted in the publications of the American Medical Association. Already several leading manufacturers have indicated their desire to cooperate with the committee; the great advertising agencies have welcomed the initiation of such a body; and there is reason to believe that

the work of the committee will do much to sustain scientific standards in a field already mired in a morass of hokum and folly.

Through its public work, particularly in the last decade, the American Medical Association has gained the respect and admiration of vast numbers of the American people. That good will is an asset of no slight importance to public health. The work of the Committee on Foods should do much to carry still further the message of good hygiene and of scientific medicine. In beginning this new work, the Council on Pharmacy and Chemistry again asks the complete support of the medical profession. Only by such support can the work have the fullest success. Only by the sincere cooperation of the medical profession with the committee can it achieve the prestige necessary to complete attainment of its objects.

ORGANIZATION IN THE MEDICAL SCIENCES

The complex organization of modern industry is without doubt responsible for many of its economic triumphs. In many industrial operations the human individual has become at most a small cog in the wheel of progress. Mass action and cooperative effort furnish the key to their success. It is a modern story differentiating the methods of work in a machine age from the independent performances of the past, in which at most a few associated persons conducted the activities of the day and scored whatever advancements were accomplished. The individual has become merged in the group in more recent industrial undertakings. Accordingly, many persons interested in the progress of scientific research have advised the adoption of forms of investigative organization comparable to those which have won admiration and approval for their effectiveness in the world of business.

Against this view the Scandinavian physiologist August Krogh,[1] himself a Nobel laureate, uttered a note of vigorous protest at the recent International Physiological Congress in Boston. Referring to the proposals to "organize" physiology by selecting its problems and then distributing separate parts for study by laboratory groups trained in special methods, Krogh sagely remarked:

> I see clearly now that all such schemes are dreams. They can never be realized and should never be realized if it could be done. The individual freedom is our chief asset, the mainspring of the really new ideas, the guarantee of progress. Physiology does not go forward as an ordered line of battle on a continuous front but must be carried on, as some one has aptly said, as a guerilla warfare against the unknown, conducted single handed or by quite small units.

This defense of the individual is timely in a country and at a period in which extensive organization has become a fetish in almost every field. There can be no universally effective organization of research genius. On the other hand there are abundant opportunities for voluntary cooperation of persons with talents in related fields. Many problems yield to attack only under the combined efforts of such representative workers as experimental physiologists, biochemists, physicists, clinicians and morphologists. The organization is an incident, however; discovery belongs to the individual, and his freedom should be conserved.

1. Krogh, August: The Progress of Physiology, Science **70**: 200 (Aug. 20) 1929.

Current Comment

TULAREMIA IN NEVADA

The number of reported cases of tularemia in the medical literature has been considerably augmented by the interesting report of a survey of Nevada by Geiger and Meyer.[1] These experienced field investigators submitted laboratory proof of fifty cases and epidemiologic evidence of 243 others with no deaths. All of the cases were of a glandular and ulcerating type with one exception, which was classified as typhoidal. The cases were stated to have been first observed in Nevada near Battle Mountain in 1912. This disease, the bacterial origin of which was discovered on the Pacific Coast, has been singularly absent, or at least few cases have been noted in the health reports of the coast states. Perhaps, as this survey seems to indicate, the disease prevails to an unusual extent in Nevada. Likewise there appears to be every type of known transmission, since rabbits, flies, ticks, and contact with other animals apparently healthy, such as dogs, coyotes and sheep, and with such extraneous material as knife blades and barbed wire were incriminated. Moreover, one proved case was attributed to bites of the mosquito, though the report admits that this information was most vague. The question of immunity to tularemia of the Indians in Nevada who use rabbits as sources of meat has been settled, since the investigators submit laboratory proof of one case in a Piute and record of others in the Shoshone Indians.

URIC ACID AND HEMATOPOIESIS

Few substances of physiologic and pathologic interest have a history of changing views as to their genesis so varied as that of uric acid. This compound is today admitted to be an end-product of purine metabolism in the human organism. Increment or decrement in the intake of purine-yielding foods is attended with corresponding rise or fall in the output of uric acid through the kidneys. One of the facts in connection with the excretion of uric acid is its never-failing presence in some amount in the urine, even when the diet is rigorously purine-free or during complete starvation. Ever since the beginning of the century, biochemists have made a distinction between endogenous and exogenous sources of excreted uric acid. It is needless to review the theories of the sources of the endogenous components in detail. In general they assume a fairly constant nuclear disintegration somewhere in the body whereby nucleic acid and subsequently purines are liberated for catabolism and elimination. Leukocytes,

1. Geiger and Meyer: California & West. Med. **31**: 38 (July) 1929.

digestive gland cells and other tissue components have been implicated at one time or another. The latest hypothesis to be tested assumes that endogenous uric acid may arise from extruded nuclei of the normoblasts at the maturation of the red blood cells. The theory has been put to an experimental test by Krafka [1] at the University of Georgia Medical College in Augusta. Increased activity of the hematopoietic tissue in producing erythrocytes was brought about by hemorrhage. Coincident with the destruction of the nuclei of the normoblasts, increased excretion of uric acid, on purine-free diets, was regularly observed. Thus, in disease, the increase in excreted uric acid in leukemia, anemia, lead poisoning and pneumonia may be accounted for in the erythrocyte behavior. Krafka admits that erythropoiesis may not be the only factor in the genesis of endogenous uric acid. He argues, however, that a nuclear metabolism for all tissues is generally assumed, but nuclear destruction in quantities sufficient to account for the daily output of uric acid in normal conditions has no histologic support, except in the instance of the bone marrow.

THE ANTIPELLAGRIC VITAMIN

Investigators in the field of nutrition have furnished evidence that the so-called accessory food factor formerly designated as vitamin B and supplied in comparative abundance by yeast represents a mixture of distinguishable "potencies." It includes a substance of pronounced antineuritic properties for which a representative group of American biochemists have proposed to retain the original designation, vitamin B. Their British colleagues have thus far preferred the differential designation of B_1. In addition to this the older vitamin B mixtures apparently contain a factor other than the antineuritic vitamin. It promotes growth and cures and prevents dermatitis in rats; consequently it has been regarded as identical with the "P-P" factor described by Goldberger and others as curative and preventive of human pellagra. The newest American designation of this is vitamin G—the vitamin B_2 of British biochemists. There is little doubt that both of these water-soluble vitamins are essential to growth and well being; and it seems reasonably certain that pellagra is due to a vitamin deficiency. Some of the apparent contradictions and uncertainties have been dispelled by the experimental demonstration of the manifold constituents of the materials originally described as water-soluble vitamin. Technics have been developed for the independent evaluation of the antineuritic and the "pellagra-preventing" vitamins. It is now known that unheated yeast is rich in both. Studies at the Lister Institute in London by Aykroyd and Roscoe [2] have demonstrated anew that cereals contain more vitamin B than vitamin G; milk and meat, the reverse. The vitamin G value of wheat and maize is low, as is that of dried legumes such as peas. Meat and egg yolk are richer in vitamin G than are the cereals, while liver and fresh milk are excellent sources of this dietary adjuvant. In the light of such facts it is easier to understand Goldberger's [3] original observations that "increasing supplies of milk or fresh meat were associated, one independently of the other, with a decreasing pellagra incidence." The British writers have suggested that the more frequent association of pellagra with a maize than a wheat diet is accidental, depending on other deficiencies in the diet of the maize eater. A maize diet is usually associated with poverty and marked by a shortage of such expensive foods as milk, meat and eggs.

1. Krafka: Endogenous Uric Acid and Hematopoiesis, J. Biol. Chem. **83**: 409 (Aug.) 1929.
2. Aykroyd, W. R., and Roscoe, M. H.: The Distribution of Vitamin B_2 in Certain Foods, Biochem. J. **23**: 483, 1929.

ESOTERIC BIOCHEMISTRY

A serious handicap to the development of clinical serology arises from its esoteric nomenclature, which effectively isolates serology from other fields of applied biochemistry. Hypothetic serum components, quantitative serum changes and altered physicochemical relationships are dignified by such transcendental terms as "alexin," "sozin," "phylaxin," "amboceptor," "endstück" and "mittelstück," with almost no attempt to translate these terms into orthodox chemical language. The recent identification of one of these hypothetic serum components with the well known prothrombin of rational biochemistry is therefore of general interest. One of the important hypothetic immunity "substances" is serum "complement," the assumed properties of which are the basis for numerous diagnostic tests. It has long been recognized that "complement" action apparently depends on or is associated with the coexistence of certain serum globulins and serum albumins. The hypothetic globulin fraction is the "mittelstück" of the Ehrlich nomenclature, the hypothetic albumin being the "endstück." Dr. Hans Fuchs [4] of the Wassermann Institute, Berlin, working with pure "endstück," pure "mittelstück" and the pure prothrombin of orthodox biochemistry, reports that "mittelstück" and prothrombin are interchangeable in complementary action, from which he concludes that "complement globulin" and prothrombin are chemically identical. The importance of the resulting liaison between immunology and the older biochemistry lies in the fact that it immediately makes available to serology a wealth of older biochemical knowledge. For example, physiologists have long taught that circulating blood contains no preformed or "free" prothrombin. It would follow from the Fuchs identity that circulating blood, therefore, contains no preformed or free "mittelstück," and therefore no active or complete "complement." Fuchs [5] was able to verify this experimentally. According to the Fuchs concept, "complement" is a postmortem product, or physicochemical readjustment, having about the same relationship to normal body fluids that fibrin has to its precursors in the circulating blood.

3. Goldberger, Joseph; Wheeler, G. A., and Sydenstricker, Edgar: Pub. Health Rep. **35**: 648 (March 19) 1920.
4. Fuchs, H. J.: Über die Beteiligung des Komplements bei der Blutgerinnung: VII. Zur Identität des Prothrombins mit dem Komplementmittelstück, Ztschr. f. Immunitätsforsch. u. exper. Therap. **62**: 107 (June) 1929.
5. Fuchs, H. J.: Über die Beteiligung des Komplements bei der Blutgerinnung: VIII. Im zirkulierenden Blut ist normalerweise kein freies Komplement vorhanden, Ztschr. f. Immunitätsforsch. u. exper. Therap. **62**: 117 (June) 1929.

Association News

COMMITTEE ON SCIENTIFIC RESEARCH OFFERS GRANTS

The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research on problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. For application forms please address the committee at 535 North Dearborn Street, Chicago, Illinois.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock, Central Standard Time, with the exception of Friday, when the health message is delivered at 9:45, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of October 14-19 is as follows:

October 14. "Medical News," by Dr. J. F. Hammond.
October 15. "Convulsions in Children: What Do They Mean?" by Dr. John M. Dodson.
October 16. "Keeping Pilots Fit," by Miss Lois Stice.
October 17. "A Formula for Health," by Mr. Cecil Bean.
October 18. "Dangerous Hair Dyes," by Dr. Arthur J. Cramp.
October 19. "Tularemia," by Dr. John M. Dodson.

Evening Health Hints from Hygeia, 8 o'Clock, Central Standard Time

October 14. Rats Are Dangerous and Expensive.
October 15. Strict Rules Protect Swimming Pools.
October 16. Does Your Doctor Meet This Test?
October 17. Exercise Does Not Cure All Ills.
October 18. Some Diseases Can Be Prevented.
October 19. Hints on Caring for Baby.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—The acting state health commissioner, Dr. Stuart Graves, has appointed three county health officers to fill vacancies caused by resignations. Dr. William A. Stanley, Enterprise, will succeed Dr. William J. Donald as health officer of Coffee County; Dr. George C. Marlette becomes health officer of Escambia County, succeeding Dr. Howell E. Leming, and Dr. Richard E. Tyler, Jr., succeeds Dr. Clarence A. Darnell of Winston County.

Society News.—The University of Alabama School of Medicine received 433 applications for admission to the freshman class this fall. Only fifty-four freshmen could be accommodated.——Dr. Daniel S. Hatfield, who has been on the staff of the U. S. Marine Hospital at Mobile since 1927, has been appointed director of the bureau of communicable diseases of the Baltimore City Health Department.——Dr. E. Gibson addressed the Geneva County Medical Society, September 17, on "Surgery of Acute Abdominal Conditions."

CALIFORNIA

Hospital News.—The new $350,000 St. Agnes Hospital, Fresno, was opened August 25.——The Southern Pacific Company announces that its general hospital at Fell and Baker streets, San Francisco, is to be enlarged.——A $50,000 unit of the Stanford Home for Convalescent Children, Palo Alto, was dedicated, September 28. The home, when founded twelve years ago by Stanford students, was a summer home for children on the campus of the university. The present home on the old Stanford estate has a capacity of eighty beds.

Symposium on Meningitis.—The Pasteur Society of Central California held at San Francisco, September 25, a symposium on epidemic cerebrospinal meningitis. Dr. Jacob C. Geiger, associate professor of epidemiology, University of California, discussed the epidemiology, and Dr. Herbert H. Darling of the Hooper Foundation, his observations on meningitis along the Pacific steamship routes, showing an important focus in Shanghai, accounting for the susceptibility of the Filipinos. Dr. James C. Perry, U. S. Public Health Service, presented the incidence of the disease on incoming ships in the last year and governmental precautions. Dr. Edward B. Shaw, San Francisco, discussed treatment, and Dr. Wilfred H. Kellogg, director, bacteriologic laboratory, state board of health, discussed the bacteriology. Thirty-one nominees were elected, making the total membership now 263.

Mergers Among Health Departments.—Since the trend toward the merging of health departments began about five years ago, sixty-five California cities have merged their public health administrative activities with the county health department or with their city health departments. These combinations, the California State Department of Public Health says, make for efficiency and economy, so that cities which heretofore have been unable to maintain efficient departments because of their small population are enabled now to secure better service at lower cost. The greatest activity in merging has been in Los Angeles County, where thirty-six cities have contracted with the county health department to administer their public health affairs. As a result, the Los Angeles County Health Department is said to be the largest one in the United States. San Diego, Santa Barbara, Monterey and other cities have transferred the work of their health departments to that of the county health departments.

Appointments to Southern California Faculty.—When the University of Southern California School of Medicine reopened last year after suspending operations for ten years, only the first year in medicine was taught. The second year of preclinical work has been added this fall; next fall the third year will be added and in 1931 the fourth year. The following appointments comprise the faculty to date: Dr. William D. Cutter, formerly dean of the Post Graduate Medical School, New York, is dean; Paul S. McKibben, Ph.D., formerly head of the anatomy department of Western Ontario Medical School, is professor of anatomy; Harry J. Deuel, Jr., Ph.D., formerly professor of physiology at the University of Maryland, is professor of biochemistry; Dr. Ernest Hall, formerly assistant professor of pathology at Stanford University, is professor of pathology, and Dr. Burrell Raulston, Los Angeles, is professor of medicine. The other appointments include John F. Kessel, Ph.D., associate professor of parasitology at the University of California, Los Angeles, as associate professor of bacteriology and parasitology; Dr. Clinton H. Thienes, assistant professor of pharmacology, University of Oregon Medical School, as associate professor of pharmacology; Dr. Esther M. H. C. Bartosh, formerly of the City Maternity Service, Los Angeles, instructor in anatomy; Dr. Philip Randall Fulton, instructor in anatomy; Frederick C. Messer, formerly instructor in physiologic chemistry, Syracuse University, instructor in biochemistry, and Dr. Lawrence Parsons, formerly assistant in pathology, Los Angeles County Hospital, instructor in pathology.

CONNECTICUT

State Starts a Consultation Service.—Physicians and organizations responsible for patients with mental diseases may now refer them without charge to psychiatrists provided by the state department of health under a new mental hygiene consultation service for which a brief survey of the state showed there was a need. These patients will be examined; a diagnosis will be made and advice given but no treatment. They will be referred back to the physician or organization which sent them, with recommendations. This is an endeavor, the state department of health says, to help in supplying psychiatrists in view of the inadequate supply. Cases should be referred to the division of mental hygiene, the chief of which is Dr. James L. McCartney. The forms provided for the purpose should be forwarded to the division at least two weeks before the time set for examination. To limit the number of places to be visited by the state psychiatrists, the following locations for mental hygiene consultations have been selected.

Place and Date		Place and Date	
Norwich	Oct. 31	Manchester	March 6
Putnam	Nov. 7 and May 29	Winsted	March 20
Torrington	Nov. 21	Derby	April 3
Danbury	Dec. 5	Sharon	April 17
New London	Dec. 19 and June 12	Wallingford	May 1
Meriden	Jan. 9	Rockville	May 15
Willimantic	Jan. 23	Norwalk	June 26
Stamford	Feb. 6	Hartford	July 10
New Britain	Feb. 20		

ILLINOIS

Dr. Bishop Appointed Health Officer of Bloomington.—Dr. Henry H. Bishop, Cadiz, Ky., has been appointed health officer of the city of Bloomington, effective October 1, to succeed Dr. George D. Heath, Jr., who resigned several months ago. Before he was health officer of Trigg County, Kentucky, Dr. Bishop was for several years in general practice.

Society News.—The St. Clair County Medical Society was addressed, October 3, by Dr. Joseph F. Bredeck, St. Louis, on "Clinical Application of the Shilling Blood Count."——The Jefferson-Hamilton County Medical Society, Mount Vernon, was addressed, September 26, by Dr. Harry H. Helbing, St. Louis, on salpingitis.——Twenty new cases of smallpox were reported in Rock Island, September 30, eleven of which were among pupils in the Eugene Fields School. The total number of cases then was said to be thirty.——The Schuyler County Medical Society, Athens, was addressed, September 26, by Dr. Albert L. Brittin on "Puerperal Care."——At the Illinois Conference on Public Welfare, Evanston, October 28-31, among others, Dr. Lewis J. Pollock, professor of neurology, Northwestern University Medical School, will speak on "Psychiatric Factors in Convalescence," and Michael Davis, Ph.D., of the Julius Rosenwald Foundation on "Health and Social Work."——The Sangamon County Medical Society, Springfield, was addressed, September 19, by Dr. Robert F. Lischer, Mascoutah, on "The Ups and Downs of a Country Doctor."——The Illinois Conference of Health Officers will meet jointly with the Illinois Municipal League at Springfield, October 17-18. Among others, Dr. John D. Nichols, director of health at Mooseheart, will speak on "Ten Years' Experience with Toxin-Antitoxin"; Thomas G. Hull, Ph.D., of the state health department on "Undulant Fever," and Dr. Andy Hall, the state health commissioner, on "The State Health Program."——The Rock Island County Medical Society was addressed, October 8, by Dr. Aaron Arkin, Chicago, on gastro-intestinal diseases.——The Winnebago County Medical Society, Rockford, was addressed, October 8, by Dr. Leroy H. Sloan, Chicago, on "Fundamental Principles in Neurologic Diagnosis."

Chicago

Personal.—Dr. Jacobo Fajardo of the Philippine Islands health department, who is traveling in the United States under the auspices of the Rockefeller Foundation, visited medical institutions in Chicago last week.——Dr. Alexander L. Darche has accepted the position of assistant physician at the Wyoming State Hospital, Evanston, Wyo.

Hospital News.—The owner of the West End Hospital, 35 South Hoyne Avenue, Dr. Benjamin H. Breakstone, was fined $200, September 25, it is reported, for failing to store roentgen-ray films in a separate building and to install gas illumination red exit lights.——St. Elizabeth's Hospital on North Claremont Avenue has undertaken the construction of an eleven story addition and later will add to it two wings.

Society News.—The Institute of Medicine of Chicago and the Society of Internal Medicine of Chicago will be addressed, October 25, at the City Club by Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard University Medical School, on "Function of the Sympathetic System in Maintaining the Stability of the Organism." Dr. Harry Gideon Wells, professor and chairman of the department of pathology, University of Chicago, will give the tenth Pasteur lecture before the institute of medicine, November 22, on "Immunology, Biochemistry and Evolution."——Dr. Gustav Kolischer will give the William T. Belfield lecture before the Chicago Urological Society, October 24.——The Chicago Ophthalmological Society and the Chicago Laryngological and Otological Society will give a dinner to the visiting members of the American College of Surgeons, October 16, at the Stevens Hotel.

INDIANA

State Medical Election.—At the recent annual meeting of the Indiana State Medical Association, Evansville, September 27, Dr. Angus C. McDonald, Warsaw, was made president; Dr. Alois B. Graham, president elect, and Dr. William A. Doeppers, Indianapolis, treasurer, reelected; Mr. Tom A. Hendricks was reelected executive secretary, and Drs. Franklin S. Crockett, La Fayette, and Albert E. Bulson, Fort Wayne, delegates to the American Medical Association. The next annual meeting will be in Fort Wayne.

Personal.—Dr. Eldridge M. Shanklin, Hammond, announced, September 27, that he would retire from the state medical board October 1.——Dr. Lindley H. Eshleman, Marion, has been elected president of the Indiana Moose.——Dr. Lloyd H. Davis, Crawfordsville, has been appointed professor of bacteriology at Wabash College.——Dr. David J. Cummings, Brownstown, has been appointed county health officer to succeed the late Dr. Luther R. McCormick.——Dr. Charles A. Miller has been appointed health officer of the city of Princeton to succeed Dr. Calvin L. Null, resigned.——Dr. John B. Maxwell resigned from the Logansport State Hospital to become chief medical officer at the state colony for the feebleminded, Butlerville.

Society News.—The Grant County Medical Society, Marion, was addressed, September 18, by Dr. Harold A. Rosenbaum, Chicago, on "Syphilis in Children."——St. John's Hospital, Alexandria, gave a dinner for members of the Madison County Medical Society, September 17; about forty physicians were present. Dr. Frank W. Cregor, Indianapolis, held a clinic.——Prof. William J. Moenkhaus of Indiana University will address the Indianapolis Medical Society, October 8, on "Physiology of the Heart Beat"; October 22, on "Physiology of the Sympathetic Nervous System," and November 5, on "Kidney Function and Its Relation to Blood Chemistry." The society will be addressed, October 29, by Drs. Harold S. Hatch on "The Treatment of Allergic Diseases" and Kenneth L. Craft on "The Treatment of Hay-Fever."——Dr. Harry E. Mock, Chicago, addressed the Tippecanoe County Medical Society, Lafayette, October 8, on surgery of trauma.——The Muncie Academy of Medicine was addressed, September 26, by Dr. LaRue D. Carter, Indianapolis, on chronic encephalitis.

MARYLAND

Memorial Cystoscopic Clinic.—The cystoscopic clinic, given by Dr. John Mason Hundley, Jr., as a memorial to his father, the late Dr. J. Mason Hundley, gynecologist of Baltimore, was opened September 2. Dr. J. Mason Hundley was on the staff of six Maryland hospitals as gynecologist, and for twenty-seven years was a professor in the University of Maryland School of Medicine, Baltimore.

Memorial to Johns Hopkins.—The Municipal Art Society of Baltimore has selected tentatively a site at Thirty-Fourth and Charles streets for the erection of a monument to Johns Hopkins, founder of the hospital and university which bears his name. A sculptor has been commissioned to make a preliminary sketch of the statue, which is to be 26 feet high. Mrs. H. R. Mayo Thom, a grandniece, has written a biography of Johns Hopkins which now is in the hands of the publishers. Johns Hopkins died in 1873. The university opened in 1876, and Johns Hopkins Hospital in 1889.

Appointments and Promotions at Maryland.—The dean of the University of Maryland School of Medicine, Baltimore, reports among others the following appointments and promotions to the faculty:

Dr. Harry Friedenwald, emeritus professor of ophthalmology.
Dr. Clyde A. Clapp, professor of ophthalmology.
Dr. Edward A. Looper, professor of diseases of the throat and nose.
Dr. Melvin S. Rosenthal, professor of dermatology.
Dr. Robert W. Johnson, Jr., professor of orthopedic surgery.
Dr. Jesse W. Downey, Jr., professor of otology.
Dr. Charles Loring Joslin, professor of clinical pediatrics.
Dr. Charles Reid Edwards, clinical professor of surgery.
Dr. Waitman F. Zinn, clinical professor of diseases of the throat and nose.
Dr. Harvey K. Fleck, associate professor of ophthalmology.
Dr. Louis A. M. Krause, assistant professor of medicine.
Dr. Harold R. Peters, assistant professor of medicine.
Dr. Milford Levy, assistant professor of neurology.
Dr. John H. Traband, Jr., assistant professor of pediatrics.
Dr. Clarence E. Macke, assistant professor of pediatrics.
Dr. Albert Jaffe, assistant professor of pediatrics.
Dr. Edward S. Johnson, associate professor of surgery.

The Round-Up of School Children.—Conferences were held throughout the counties of Maryland during the summer for the examination of children who would be admitted to school for the first time this fall. The conferences were sponsored by the state department of education, parent-teacher associations, and the state department of health. The examining physicians noted the condition of the heart, lungs, eyes, ears, nose, throat and teeth and the weight and posture of the children; they pointed out conditions which should be corrected and advised the parents to take such children to their family physician or dentist. In all, 3,755 children were examined. One fourth of them were underweight; bone changes due to rickets were observed in 110; faulty posture in 252; unfavorable conditions of the lungs in ninety-seven, of the heart in ninety-nine, and of the eyes and ears in fifty-six, and mental retardation in seventeen. More than half of these children had not been vaccinated against smallpox, and in this instance the parents were told that the Maryland law required smallpox vaccination before entrance to school.

MICHIGAN

Society News.—The Michigan State Medical Society conducted postgraduate conferences, October 8 and October 11, at the state hospital, Traverse City, and at Howell Sanatorium, Howell, where a tuberculosis clinic was held as well as discussions on tuberculosis. All of the speakers at these two conferences were from various cities in the state.

Professor of Zoology Becomes President of Michigan.—The board of regents of the University of Michigan, October 4, unanimously voted to make Prof. Alexander G. Ruthven president of the university. Dr. Ruthven has been acting president since the resignation of Clarence Cook Little in January and for many years has been on the faculty of the university as professor of zoology and director of the museum. He was born in Iowa and took his Ph.D., degree at Michigan in 1906. Dr. Ruthven is 47 years old.

Dr. Case Goes to Chicago.—Dr. James T. Case of the staff of the Battle Creek Sanitarium has accepted an invitation to move into Chicago where he will engage in private practice and be in charge of the roentgen-ray departments of the Evanston Hospital and the new Passavant Memorial Hospital. Dr. Case will retain his connection with the Battle Creek Sanitarium as visiting surgeon, spending Mondays there, but will reside in Evanston. He has for many years been connected with Northwestern University Medical School as professor of roentgenology.

NEBRASKA

Dr. Davis Appointed Chairman of Department.—The chancellor of Nebraska University has announced the appointment of Dr. Byron B. Davis as chairman of the department of surgery to succeed Dr. August F. Jonas, who has been made professor emeritus of surgery. Dr. Jonas has been connected with the medical college since 1892. The board of regents passed a resolution recognizing the valued service which he had given the university. Dr. Davis has been the acting chairman of the department for the past year.

Society News.—The film produced at the University of Chicago by Drs. Anton J. Carlson and Arno B. Luckhardt, showing the movements of the alimentary tract in experimental animals, was presented before the Omaha-Douglas Medical Society, September 24. —— Dr. Guy Seward, Fremont, was elected surgeon general of the Veterans of Foreign Wars at the national convention at St. Paul, recently.——The Omaha-Douglas County Medical Society was addressed, October 8, by Dr. George W. Crile, Cleveland, on "Peptic Ulcers."

Chiropractors Dwindle Under Basic Science Law.—It is reported that no chiropractors have been licensed in Nebraska since the basic science law became effective in 1927. The four chiropractors who have applied to take the examination since that time failed. As a result, the state board of chiropractic examiners has practically gone out of business, although it maintains an organization. Nebraska now has, it is said, only 325 chiropractors, and they were in the state before the basic science law became effective. There were more than 400 chiropractors two years ago.

NEW YORK

Health at Albany.—Telegraphic reports to the U. S. Department of Commerce from sixty-three cities with a total population of about 29 million, for the week ending September 28, indicate that the highest mortality rate (20) was for Albany, and that the mortality rate for the group of cities as a whole was 11.4. The highest infant mortality rate for the week (204) was for Utica. The mortality rate for the group of cities for the corresponding week last year was 10.9. The annual mortality rate for sixty-three cities for the thirty-nine weeks of 1929 was 13.2, as against 12.9 for the corresponding weeks of 1928.

Consultations on Children's Health.—The state department of health is holding children's health consultations, beginning September 16, in Byron, Bergen, Stafford, Bethany, Pavilion, Darien, Alexander and Tonawanda Indian Reservation for children of preschool age. The purpose is to demonstrate to parents the value of periodic physical examinations of healthy children made by their family physicians. A physician will make a physical examination at these consultations and then talk to the parents about the child, his health habits, daily hygiene and home care, and send a report of the examination to the family physician. No treatment will be prescribed at the consultations.

Personal.—Dr. Nelson G. Russell, formerly professor of clinical medicine, University of Buffalo School of Medicine, has been appointed to the chair of professor of medicine.—— Dr. William A. Howe, state medical inspector of schools, was awarded the Ling Foundation Medal at the annual dinner of the American Association of School Physicians, Minneapolis, September 30-October 5. This medal is awarded annually to the American citizen selected by officers of the foundation as having accomplished the most outstanding work in child health. ——Dr. Cora H. S. Allen has been provisionally appointed associate director of the division of maternity, infancy and child hygiene in the state department of health in place of Dr. M. Luise Diez, resigned. Dr. Allen for a number of years has been associated with the Wisconsin State Board of Health.

New York City

Lectures on Psychoanalysis.—The New York Psychoanalytic Society will open its third annual course of lectures on psychoanalysis, limited to doctors of medicine, November 4. The lectures will be given by Drs. Abraham A. Brill, Bernard Glueck, Smith E. Jelliffe, Abraham Kardiner, Bertram D. Lewin, Alexander S. Lorand, Monroe A. Meyer, Clarence P. Oberndorf and Adolph Stern. For further information apply to Dr. Monroe A. Meyer, secretary, 660 Madison Avenue, New York.

Another Hospital for the Middleman.—Matthew S. Sloan, president of the New York Edison Company, has accepted the chairmanship of the campaign to raise $6,000,000 to build and endow the Gotham Hospital in New York for the care of persons of moderate means. It will be on a site already obtained at One Hundred and Seventh Street and Central Park West. The president of the board of directors of the Gotham Hospital Funds, Inc., is Henry Bruere, vice president of the Bowery Savings Bank.

Personal.—Philip S. Platt, Ph.D., has resigned as executive secretary of the Associated Out-Patient Clinics Committee and as assistant director of the New York Tuberculosis and Health Association to become director of the Palama Settlement in Hawaii. He will sail from San Francisco, November 6.—— Drs. Dewitt R. S. Barnes and Arthur E. Brides will be in charge of the two units of the medical department of the New York and Queens Electric Light and Power Company at Long Island City and Flushing, respectively. —— Dr. Samuel F. Weitzner has been appointed radiologist at the New Morrisania City Hospital.

Guggenheims Buy Dental Clinic Site.—The first unit in the chain of free dental clinics to be established by the Murry and Leonie Guggenheim Foundation will be on Seventy-Second Street between First and York avenues. The foundation has purchased the plot and will expend, it is reported, more than $3,000,000 for the construction, equipment and endowment of the unit. The old tenements on the site will be demolished. Plans for the first dental clinic are being made. Among the charter members of the Guggenheim Foundation is Dr. S. S. Goldwater, formerly city health commissioner and director of Mount Sinai Hospital (THE JOURNAL, July 13, p. 126).

New Psychiatric Hospital for Bellevue.—The commissioner of hospitals announced, September 8, that a new psychiatric hospital is to be built on the East River at Twenty-Ninth Street which will replace the old psychopathic wards of Bellevue Hospital. The new building will accommodate 600 patients, cost $3,500,000, and be ready in two years. About 100 beds will be devoted to research in nervous and problem children to be undertaken by the department of education. The structure will be Italian Renaissance, and large wards will be discarded; all features were designed from the standpoint of their curative effect on patients. The building will have two eight-story wings, connected to a third section ten stories high. Dr. Menas S. Gregory will be in charge of the psychiatric hospital.

Advertising a Physical Examination Campaign.—A full page advertisement in the New York *Times*, August 18, announced a campaign to popularize health examinations which will be carried on during November by the five county medical societies of Greater New York, the Medical Society of the State of New York and the New York City Department of Health (THE JOURNAL, July 20, p. 216). The seals of six of the organizations taking part, the names of the presidents of the societies and of members of the Greater New York Committee on Health Examination, charts showing the death rate at various ages and the increase in kidney and circulatory impairments, and reading matter pointing out the advantages to be gained by apparently well persons who have themselves examined periodically by a physician, made up the display.

Diseases Studied at Rockefeller Institute.—During the next year the Rockefeller Institute for Medical Research will be engaged in the study of several diseases. Patients suffering

from them will be admitted to the hospital to the extent of its facilities. Physicians may telephone Rhinelander 0900, and an ambulance will be sent when required. The diseases under study are (1) measles, cases prior to the appearance of the rash being especially desirable; (2) rheumatic fever in the early course of the disease before antirheumatic drugs have been given, and patients suffering from complications of rheumatic fever; (3) chronic heart disease, especially patients in the advanced stages of heart failure; (4) acute or chronic nephritis, especially young patients, and (5) acute infections of the respiratory tract, especially in adults with primary bronchopneumonia.

OHIO

Society News. — The Mahoning County Medical Society, Youngstown, was addressed, September 17, by Dr. Roy R. Snowden, Pittsburgh, on nephritis.——The Tuscarawas County Medical Society, Uhrichsville, was addressed, September 19, by Dr. Raymond A. Ramsey, Columbus, on "The Heart in Thyroid Disease," and by Dr. Max Shaweker, Dover, on "Undulant Fever."—— During the eighty-fourth annual meeting of the Third District Medical Association held at Findlay, October 8, Drs. Albert H. Freiberg, Cincinnati, president of the Ohio State Medical Association, Chester W. Waggoner, Toledo, president-elect, Verne C. Hunt, Rochester, Minn., Roger S. Morris and Howard D. McIntyre of Cincinnati, and Louis J. Hirschman, Detroit, were among the speakers. Dr. Abraham Strauss, Cleveland, gave an address on cancer and will exhibit the Canti Cancer Film. There was a golf tournament preceding the meeting.——Dr. James M. Rector addressed the Columbus Society of Internal Medicine, September 30, on "Achylia Gastrica, a Study of One Hundred and Three Cases."——Dr. Arthur C. Morgan, Philadelphia, addressed the Summit County Medical Society, Akron, October 8, on "The Treatment of Acute Cardiac Tragedies."—— The Erie County Medical Society, Sandusky, was addressed, September 25, by Dr. John L. Stifel, Toledo, on "The Anemias."——The Mercer County Medical Society, Celina, was addressed, September 26, by Dr. James V. Pace, Lima, on chest pathology.——Dr. John H. J. Upham, Columbus, addressed the Knox County Medical Society, September 26, on "Embryonic Liver Feeding in Aplastic Anemia."——Ohio has 310 tourist camps in forty-nine counties approved by the state health department.——Dr. James E. King, Buffalo, N. Y., addressed the Eighth District Medical Society, Lancaster, October 3, on "Use of Pessaries in General Practice," and Dr. Abraham H. Aaron, Buffalo, on "Gastro-Intestinal Therapeutics."——The Muskingum Academy of Medicine, Zanesville, was addressed, October 2, by Drs. Arthur G. Helmick and Sylvester J. Goodman, Columbus, on "Diagnostic Suggestions in Pediatric Practice" and "Treatment of Postpartum Hemorrhage," respectively.——Dr. Wingate Todd, Henry Wilson Payne professor of anatomy, Western Reserve University School of Medicine, Cleveland, addressed the Toledo Academy of Medicine, October 4, on "A Study of Stable Stomachs" or "Behavior Patterns of the Alimentary Tract." The academy will present a graduate course on gynecology, November 11-16, by Dr. Frederick C. Holden, New York, for which the fee will be $20. It will comprise clinics, pathologic conferences and lectures, and physicians in the neighboring states are invited.

PENNSYLVANIA

State Medical Election.—Dr. William T. Sharpless, West Chester, was made president of the Medical Society of the State of Pennsylvania at its recent annual meeting; Dr. Ross V. Patterson, dean of Jefferson Medical College, Philadelphia, was made president elect; Drs. Joseph A. Stackhouse, Erie, Randall B. Hayes, Jersey Shore, Herbert A. Bostock, Norristown, and Alexander H. Stewart, Indiana, vice presidents; Dr. Walter F. Donaldson, Pittsburgh, secretary, reelected, and John B. Lowman, Johnstown, treasurer. The next annual meeting will be at Johnstown in 1930.

Society News.—The Washington County Medical Society was addressed, October 9, by Dr. Orville G. Lewis, Washington, on hernia, demonstrated with cases.——The Northampton County Medical Society was addressed, September 20, at Bethlehem by Stanley J. Thomas, professor of bacteriology, Lehigh University, on hematology.—— The Dauphin County Medical Society was addressed, September 3, by Dr. Harvey F. Smith, Harrisburg, on "What Can We Do for Our Prostatic Patients?"—— The Harrisburg Academy of Medicine was addressed, September 17, by Dr. Harold L. Foss, Danville, on "Complications and Sequelae of General Surgery."—— The Fayette County Medical Society, Uniontown, was addressed, September 4, by Dr. Thomas Judson McBee, Morgantown, W. Va., on "Traumatic Surgery of the Genito-Urinary Tract." This society will have at its annual fall clinic in November, Dr. Carl A. Hamann, Cleveland, formerly dean of Western Reserve University School of Medicine, and Dr. Roy Wesley Scott, Cleveland.——Jeanes Hospital, Philadelphia, was host to the Burlington County Medical Society, September 25, at a luncheon and inspection of the new cancer hospital; the scientific session was presented by the staff.——The Allegheny County Medical Society will be addressed, October 15, by Drs. Cyril F. Lauer on "Educational, Economic and Social Aspects of Eye Muscle Defects"; George J. Busman, "Arsphenamine Reactions: Acute Arsphenamine Collapse" with report of case; Wilbur M. Holtz, "Artificial Resuscitation," and Henry J. Benz, "Diphtheria Prevention."

Philadelphia

Jefferson Moves to New Building.—The new school building, proposed two years ago for Jefferson Medical College, has been completed, and was occupied with the opening of school this fall. It is a $1,650,000 twelve story yellow brick structure, adjoining the new sixteen story Jefferson Hospital. The equipment is also largely new (THE JOURNAL, June 25, 1927, p. 2042). The original plan to renovate the old medical college building for use as an outpatient department has been abandoned. A new clinic, named in honor of Cyrus H. K. Curtis, who gave $500,000, will be constructed; others have contributed a like sum. When the Curtis Clinic is completed adjoining the college building, there will be "one architectural whole," 268 feet long on the north side of Walnut Street, west from Tenth Street, and 110 feet deep. The two portions of Jefferson Hospital adjoining are also 268 by 110 feet. Jefferson has, in addition, several lots on Eleventh Street, a dispensary for maternity patients, a clinic for chest diseases at 238 Pine Street, and anatomic laboratories at Eleventh and Clinton, in all, a group of nine buildings. In the new college building is a library with a capacity of 40,000 volumes, about three times that of the present number of books on hand. A bequest from the late Samuel P. Scott of Hillsboro, Ohio, will bring nearly $1,000,000 for the endowment of this library.

RHODE ISLAND

New England Surgical Society.—The annual meeting of this society was held in Providence and in Fall River, Mass., September 27-28. The first day was devoted to clinics and to a symposium on kidney stone by Drs. Arthur L. Chute, Richard F. O'Neil and James D. Barney. Among the papers read on the second day were "Some Problems in the Dispensary Teaching of Surgery" by Dr. Willis E. Hartshorn, New Haven, Conn.; "What Can the Members of the New England Surgical Society Do to Improve the Treatment of Fractures," Dr. Charles L. Scudder, Boston; "Chronic Cholecystitis and the Graham Test," Drs. Edward L. Young, Jr., and Horace K. Sowles, Boston; Dr. Fred B. Lund, Boston, gave a case report on melanotic sarcoma of the small intestine.

TENNESSEE

Dr. Haygood Returns to Knoxville. — Dr. Marvin F. Haygood, health officer of Knoxville, who two years ago was lent to the state health department to take charge of the tuberculosis program, has returned to Knoxville to resume his former duties as city health officer. Dr. Haygood will continue, however, as a consultant, while Dr. Joseph W. Mountin will take over the active tuberculosis work in the state health department.

Society News.—The Tri-County Medical Society (Henderson, Chester, Decatur) was addressed, September 10, at Henderson by Drs. William I. Howell on "Pregnancy with Malaria," and John E. Powers, Lexington, on colitis.——At the Southern Tuberculosis Conference and the Southern Sanatorium Association meeting in Nashville, September 25-27, among the speakers were Drs. Kendall Emerson and Harry E. Kleinschmidt of the National Tuberculosis Association, New York, and Dr. Donald B. Armstrong of the Metropolitan Life Insurance Company, New York.——The following papers have been read recently before the county medical societies indicated:

"Sudden Heart Failure," Dr. Peter Whitman Rowland, Jr., Memphis, Carroll-Benton-Henry-Weakley counties.
"Obstetrical Forceps," Dr. Lucien J. Caldwell, Nashville, Davidson County.

"Diabetes Insipidus," Dr. Harry C. Boyd, Waynesboro; "Hypnotism," Dr. Joseph P. Keller, Nashville, Five County Society.

"Overcoming the Renal Hazard," Dr. Ernest R. Zemp, Knoville; "The Control of Poliomyelitis," Dr. James A. Doull, Baltimore, Knox County.

"X-Ray and Radium in Gynecology," Dr. Richard A. Barr, Nashville; "Treatment of Heart Failure," Dr. Samuel John House, Nashville, Montgomery County.

"Colonic Toxemia," Dr. Clinton E. Brush, Nashville, Robertson County.

"The Thyroid Problem of Medicine and Surgery," Dr. Herbert Acuff, Knoxville, Roane-Loudon-Monroe counties.

TEXAS

Society News.—The Bowie-Miller county medical societies have scheduled addresses by Dr. William Hibbetts, October 18, on "Importance of Blood in the Urine"; by Drs. Charles A. Smith and William D. Smith, November 15, on acute and chronic gonorrhea, respectively, and December 20, by Dr. Lucien H. Lanier on "Prevention of Defective Vision," and by Dr. Hugh E. Longino, on "Urology in Daily Practice."—— The state board of control has been inspecting sites in Dallas and Galveston for the erection of the two psychopathic hospitals which the legislature has authorized.

GENERAL

Dermatologic Meeting.—At the fifty-second annual meeting of the American Dermatological Association, San Francisco, July 1-3, Dr. Udo J. Wile, Ann Arbor, Mich., was elected president; Dr. Ernest D. Chipman, San Francisco, vice president, and Dr. Clarence Guy Lane, Boston, secretary. The California members presented a clinic of about fifty cases. The program included about twenty papers, including a symposium on heredity and dermatology. The guest of honor was Prof. Joseph Jadassohn of Breslau, Germany. Forty-four active members attended. The following new members were elected: Drs. Paul E. Bechet, New York; Frank W. Cregor, Indianapolis; James R. Driver, Cleveland; Joseph J. Eller, New York; Albert Keidel and Joseph Earle Moore, Baltimore, and Loren W. Shaffer, Detroit. Prof. Johan Almquist of Stockholm, and Prof. Emil Bruusgaard, Oslo, were elected corresponding members. The next annual meeting will be in Cleveland.

Foundation Attempts Reduction of Maternal Mortality.—During the annual meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at Memphis, articles of association were adopted for an organization to be known as the American Association of Obstetricians, Gynecologists and Abdominal Surgeons Foundation, Incorporated, the object of which will be to gather, promote and disseminate theoretical and practical knowledge on these and allied subjects. One must be a member of the former organization to be eligible to membership in the latter. The immediate activities will be the urging of better teaching of obstetrics; an appeal will be made to all medical schools to equalize the hours of teaching with those given to surgery. The foundation will urge the making of prenatal care universal, and will conduct propaganda among women's clubs, health centers, parent-teacher associations for a better understanding of maternal welfare. The foundation was incorporated under the laws of Michigan. The president for this year is Dr. George Van Amber Brown, Detroit; Dr. Alexander M. Campbell, Grand Rapids, is vice president, and Dr. James E. Davis, Ann Arbor, secretary.

Madame Curie Arrives, October 15.—Friends in this country will present another gram of radium to Madame Curie following her arrival in New York, October 15. The gram of radium presented on her visit to the United States in 1921 has been in constant use in the Curie Institute of the University of Paris. In addition to that Madame Curie has been renting from the Warsaw Cancer Hospital at Poland another gram, the rental of which was paid by her with funds which American friends intended should be for her own personal use. The radium to be presented on this visit will enable her to return to the Warsaw Hospital that which has been rented. It is not intended to hold any public receptions as Madame Curie's health will not permit. She will pass a day with President and Mrs. Hoover, old acquaintances, and will attend a conference on cancer in New York, October 31, and the dedication of the hall of chemistry at St. Lawrence University, Canton, N. Y., before which has been erected a statue of her through a gift from Mrs. A. Barton Hepburn. Madame Curie feels deeply indebted to this country for what friends have done for her. She would not permit any further solicitation of funds in her behalf. No public appeal, therefore, was made. A private group of women collected money to buy the second gram of radium. Madame Curie has been living humbly in Paris, provided with the bare necessities of life. While free to use the endowment given her by American friends, she has spent the entire income for the rental of radium. She will return to France, November 8.

Fifteen Hospitals for Crippled Children.—Since 1921, when Mayor Kendrick of Philadelphia suggested building a hospital for the free treatment of crippled children unable to obtain relief in any other way, the Nobles of the Mystic Shrine have built and put in operation hospitals for this purpose in Minneapolis, San Francisco, Portland, Ore., St. Louis, Montreal, Springfield, Mass., Chicago, Philadelphia, Greenville, S. C., and Shreveport, La., in addition, five mobile units have been established in places not accessible to these hospitals. The mobile units rent space in existing hospitals, but are managed like the ten permanent hospitals. There are mobile units at Honolulu, Winnipeg, Spokane, Salt Lake City, and Lexington, Ky. Two permanent hospitals have 100 beds each and the others fifty, so the total capacity of this service for crippled children is about 850 beds. The hospitals are under the direction of eleven trustees, and their local affairs are conducted by a board of nine governors. Members of the Shrine pay an annual assessment of $2 for this work. Crippled children under 14 years of age whose parents are unable to pay for their treatment, regardless of race, color or creed, are eligible. Since this movement started more than 9,000 bed patients have been treated in Shriners' hospitals, and about 19,000 children in the outpatient departments. The board of trustees says in the *Red Cross Courier* that no pay or part pay patient is accepted. A research department is maintained at the St. Louis unit where work is being done on the cause and means of relieving obscure orthopedic conditions. The trustees estimate that the number of crippled children in North America exceeds 400,000.

Nonservice Cases in Government Hospitals.—General Hines, director, U. S. Veterans' Bureau, in addressing the annual convention of the American Legion at Louisville, October 2, reviewed the situation in Veterans' Bureau hospitals. Under present legislation and experience, he said, the hospital facilities now available plus those planned will be inadequate to meet the demands to be made by veterans needing some sort of physical care in the years to come. Pressure has been brought to bear, however, since the passage of the law authorizing hospitalization of veterans of all wars regardless of the origin or nature of their disabilities, which has become so great that for neuropsychiatric cases the demand for beds has exceeded the supply. That has resulted in hospitalization of a part of the neuropsychiatric cases in state hospitals, and in the refusal of beds to certain cases not service-connected. General Hines noted the trend of hospitalization under the law permitting veterans' having nonservice disabilities to be hospitalized. Since December, 1925, the number of nonservice cases in veterans' hospitals increased from 17 per cent of the total number of patients to 43 per cent on June 30, 1929, an increase in three and one half years of nearly 300 per cent. It is the policy of the bureau to interpret the veterans' bureau act liberally, but it must not be broken. If there are veterans not adequately covered by the law, it is the duty of the bureau and of the legion, he said, to present the facts to Congress. General Hines requested the cooperation of the legion in any such situation. Preliminary studies based on the experiences of soldiers' homes after the Civil and Spanish-American wars indicate that by the year 1953 facilities probably will be required for 65,000 veterans in soldiers' homes, or an increase of more than 300 per cent of the present soldiers' home load. To provide for this, there probably must be inaugurated within the next five years a building program to enlarge existing soldiers' homes or establish new units. The extent to which the government has gone to assist veterans is shown by the total expenditure of $4,800,000,000 disbursed by the bureau up to Aug. 31, 1929. Of this total $389,796,538 was for medical and hospital facilities and services, $1,455,285,908 for compensation, and $645,004,162 for vocational training.

Medical Bills in Congress.—S. J. Res. 57, introduced by Senator McKellar, Tennessee, proposes to transfer to the Veterans' Bureau the management of the National Home for Disabled Volunteer Soldiers at Johnson City, Tenn. S. 1395, introduced by Senator Tydings, Maryland, proposes to amend the World War Veterans' Act to bring within its purview cadets at the United States Military Academy and midshipmen at the United States Naval Academy. S. 1685, introduced by Senator Capper, Kansas, proposes to impose a duty on the board of education of the District of Columbia to submit in estimates for appropriations for the maintenance of the public schools proper provision "for everything necessary for the children's health which parents are unable or unwilling to provide." S. 1766, introduced by Senator Dill, Washington, proposes to amend the World War Veterans' Act to provide that if an

ex-service man has a disability which is rated at 75 per cent or more, he shall be conclusively presumed to have acquired it in service between April 6, 1917, and July 2, 1921, and shall be entitled to compensation at the rate of $40 a month, unless it can be shown that the disability was actually caused by his wilful misconduct after discharge from service. S. 1774, introduced by Senator Black, Alabama, proposes to amend the World War Veterans' Act to provide compensation at the rate of $50 a month, during disability, for any commissioned officer or enlisted man or other member in active service under the War Department or the Navy Department at any time during the period beginning April 6, 1917, and ending July 2, 1921, who is found to be totally and permanently disabled, "if such disability is not the result of personal injury, disease, aggravation or recurrence suffered or contracted in, or caused by, such service as hereinabove specified." H. R. 3798, introduced by Representative Woodruff, Michigan, proposes to provide for the retirement of disabled nurses of the navy. H. R. 4207, introduced by Representative O'Connell, Rhode Island, proposes to amend the World War Veterans' Act to provide compensation for every veteran who is shown to have any disability not the result of his own wilful misconduct. H. R. 4292, introduced by Representative Leech, Pennsylvania, proposes to amend the World War Veterans' Act by extending from Jan. 1, 1925, to Jan. 1, 1930, the period within which if active tuberculosis develops it shall be presumed to be of service origin, if the presence of the disease is evidenced by the affidavits of two licensed physicians.

Association of American Medical Colleges.—This association will hold its fortieth annual meeting at the new Medical Center of Columbia University, New York, November 7-9. The following program will be presented: First day: "The Scholastic Achievements of Multiple Applicants," Adam M. Miller, dean, Long Island College Hospital; Dr. Alexander S. Begg, dean, Boston University School of Medicine, and A. M. Schwitalla, dean, St. Louis University School of Medicine. "State Boards and Medical Schools," Dr. Harold L. Rypins, secretary of the New York state board of medical examiners. "Cooperation Between the College and the Medical School," Herbert E. Hughes, dean, Columbia College. "Premedical Requirements in Chemistry," Hans T. Clarke, Columbia University. "Modern Foreign Language Preparation for Medical School Use," Dr. Horatio Williams, Columbia University College of Physicians and Surgeons. "Some Aspects of Premedical Education," William G. Smeaton, University of Michigan. Second day: "Study of Applicants for Admission to Medical Schools (fourth report), Dr. Burton D. Myers, Indiana University School of Medicine. "Residence Colleges at Harvard University," Abbott Lawrence Lowell, president, Harvard University. "Some Results of an Experiment in Graduate Medical Work," Guy Stanton Ford, dean, Graduate School, University of Minnesota. "Courses in Graduate Instruction in Medicine," John C. Metcalfe and Harvey E. Jordan, University of Virginia. Third day: "The Statistical Method as an Adjunct to the Teaching of Medicine in the Clinic," Dr. John H. Wycoff, Jr., University and Bellevue Hospital Medical College. "Teaching on Treatment of Fractures," Dr. William Darrach, dean, Columbia University College of Physicians and Surgeons. "Scholastic Aptitude Tests for Medical Students," Dr. Fred Moss, George Washington University, Washington, D. C. "Medical Extension Teaching," Dr. Charles R. Bardeen, dean, University of Wisconsin Medical School. "Postmortem Examinations in Graduate Teaching," Dr. Harold E. Robertson, Graduate School, University of Minnesota. "Correlation of Medical School Examinations and Those of National Board of Medical Examiners," Dr. Walter L. Bierring, National Board of Medical Examiners. "Use of Strip Photo Film as Aid in Teaching," Dr. Frank Krusen, associate dean, Temple University School of Medicine. The dinner meeting, Thursday evening, at the Hotel Pennsylvania, will be addressed by Nicholas Murray Butler, LL.D., president of Columbia University, and Dr. Burton D. Myers, president of the association. Inquiries may be addressed to the secretary, Dr. Fred C. Zapfe, 25 East Washington Street, Chicago.

Public Health Association Meeting.—About 2,500 public health workers attended the fifty-eighth annual meeting of the American Public Health Association, the American Child Health Association and related societies at Minneapolis, October 1. The meeting comprised conferences and addresses by national and international authorities, a series of dinners, trips to local public health works and the election of officers. The president of the American Public Health Association, George W. Fuller, a consulting engineer of New York, urged the reorganization of the association to bring about stabilization of administration, and clarification of the authority and the allocation of the responsibility of its officers. He urged that the overlapping of efforts of voluntary health agencies be lessened by securing support for specific undertakings recommended by the health officers' group; that the association provide an effective and scientific organ with popular appeal for expression on problems of today that affect public health; that the association endeavor to promote better relations between medical practitioners and public health workers, and that it strengthen its position in matters of research and standards, and, after giving due consideration to various problems, concentrate on the most timely and most necessary ones with a view to developing them to specific projects. Prof. Edwin O. Jordan, Ph.D., of the University of Chicago, gave an address on influenza. He said that modern students are a unit in regarding influenza as a typical infectious disease due to a living, if yet unknown, micro-organism. Whatever the origin of pandemics, whatever the possible predisposing effect of obscure cosmic factors, there need be no hesitation in accepting the fact that influenza is a germ disease spread largely, if not wholly, by human agency. As to the mode of transmission, Dr. Jordan said that the facts known accord best with the hypothesis that influenza passes directly from one human being to another, probably by droplet infection. There are almost overwhelming technical difficulties involved in bacteriologic research on influenza, a result, in part, of the swarms of microbes other than the influenza virus that invade the human body. A recent extensive study by Falk and his associates at the University of Chicago suggests, however, in a high degree, the isolation of a definite microbe. Their conclusions, Dr. Jordan said, must necessarily run the gauntlet of confirmation by other workers. The difference between influenza and colds is, the author says, a "hard nut to crack." Dr. Jordan is unwilling to believe that the possibilities of clinical study of influenza and colds have been exhausted. It was pointed out that certain communities have high influenza-pneumonia mortality rates in epidemic after epidemic. Pittsburgh affords one of the most remarkable instances of this sort, having had the highest or nearly the highest rate in any American city in 1918, repeating this record again in 1920 and ranking second only to Birmingham, Ala., in 1929. The city of Sheffield, England, seems to be similarly liable to frequent and severe visitations of influenza. On the other hand, the death rates in the 1929 epidemic in New York, Boston, Philadelphia and Baltimore were relatively little affected. Our knowledge of influenza can be greatly extended, Dr. Jordan said, by systematic epidemiologic inquiry. William D. Frost, Dr.P.H., in a paper on "The Streptococcus of Septic Sore Throat," said that the mere presence of hemolytic streptococci in milk had no significance to septic sore throat, as they are frequently found in raw as well as in pasteurized milks. A culture of *Streptococcus epidemicus* was obtained from the milk of seventeen cows which corresponds in all particulars with the cultures of the organism from the various human epidemics from which cultures are available. Dr. Ruth Tunnicliff of Chicago, in a paper on the opsonic method of identification of scarlet fever streptococci, reported a simple opsonic test that has been devised for the identification of scarlet fever streptococci and used to detect carriers. It consists in comparing the amount of phagocytosis of a streptococcus in a specimen containing antiscarlet fever streptococcus serum with one containing normal serum. The streptococcus can be identified with this test in from twenty-four to forty-eight hours. Dr. Kendall Emerson of the National Tuberculosis Association, New York, addressed the annual banquet of the Minnesota Public Health Association. He said that public health work is basically the education of the individual and that the invocation of law is but a minor phase of the activities of public health workers. H. E. Barnard, Ph.D., director, White House Conference on Child Health and Protection, spoke in place of Dr. Ray Lyman Wilbur, who was unable to be present. Dr. Barnard said that the object of President Hoover's conference on child health is to determine what the normal is in children in order to form a basis on which parents, teachers and health authorities can check up on the individual child to see that it keeps normal. On the basis of the findings of committees which will assist in the compilation of facts, recommendations will be formulated as proposed policies for definite organizations throughout the country. About twenty committees will investigate the technic of child health work, prenatal and maternal care, recreation and play, child labor, and milk production and control. The investigators will comprise, he said, obstetricians, pediatricians, anatomists, authropologists, dentists, psychologists, psychiatrists, nutrition specialists, biometricians and sociologists. In the words of President Hoover, as quoted by Dr. Barnard, the crux of the problem is, as quickly as possible, to bring what knowledge we have into the open, broadcast it, and make it familiar to the average busy, but deeply concerned, parent.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 14, 1929.

A Profound Change in the Age Constitution of the Population

In his annual report for 1928 on the state of the public health, Sir George Newman, chief medical officer to the ministry of health, calls attention to a profound change in the age constitution of the population. For more than a generation, owing to the declining birth and death rates, the proportion of children has been decreasing and of persons past the prime of life increasing. In 1901, 11.4 per cent of the inhabitants of England and Wales were children under 5 years and 10.6 per cent were persons more than 55 years of age. By 1911 the proportion of children had fallen to 10.7 per cent and that of persons beyond the prime of life had increased to 11.6 per cent. The war, with its destruction of men and enhancement of the fall of the birth rate, resulted in the proportion of children in 1921 descending to 8.8 per cent, while the proportion of persons over 55 rose to 13.7 per cent. The estimate of population in 1928 gives 8.1 per cent of children under 5 and 15.8 per cent of persons over 55. Among the latter, women outnumber men by more than half a million. At the working ages of life, from 15 to 55, there are estimated to be rather more than 11,000,000 males and more than 12,250,000 females. There is no reasonable doubt that this change will continue; it is estimated that, by 1941, 7.5 per cent of the population will be children and more than 19 per cent persons over 55. Instead of, as at the beginning of the twentieth century, children outnumbering those in late middle and old age, the latter will be much more than twice as numerous as the former by the middle of the century. In 1928 the birth rate exceeded the death rate by 5 per thousand, or, in other words, the natural increase of population was at the rate of 5 per thousand. In 1901 the rate of natural increase was 11.6 per thousand, almost as high as sixty years before, when the birth and death rates had not begun to fall. In 1911 the rate of increase was 9.7. "We are," comments Sir George, "almost within sight of a stationary population."

Birth and Death Rates in England and Wales Since 1871

Period	Average Annual Birth Rate per 1,000 Living*	Average Annual Death Rate per 1,000 Population*	Average Annual Infant Mortality per 1,000 Births*
1871-1880	35.4	21.4	149
1881-1890	32.4	19.1	142
1891-1900	29.9	18.2	153
1901-1910	27.2	15.4	128
1911-1920	21.8	14.3	100
1919	18.5	14.0	89
1920	25.5	12.4	80
1921	22.4	12.1	83
1922	20.4	12.8	77
1923	19.7	11.6	69
1924	18.8	12.2	75
1925	18.3	12.2	75
1926	17.8	11.6	70
1927	16.6	12.3	70
1928	16.7	11.7	65

* Annual rates for 1919-1928.

Speaking of the falling birth rate, the chief medical officer says: "This decline is more serious than would appear from a casual examination of the figures. Owing to the changes in the age constitution of the population referred to above, and the heavy losses suffered by the manhood of the nation during the war, there is at present an unusually high relative proportion of women of child-bearing age. One would therefore expect an increase rather than a decrease in the number of births per thousand of population if the rate of reproduction were being maintained."

In an editorial entitled "The Young Man's Burden," the *Times* points out the seriousness of the diminution of youth in our population. The part capable of hard work is growing smaller while that which has done its best work and is dependent is growing larger. The burden which age imposes on youth is therefore likely to increase. The necessity for making provision for the old is probably restricting the ability of the working element to make provision for children. The cause of this profound change is economic. England, once the manufacturing country of the world, the only one which exported manufactures on a large scale in return for food and raw materials, has many rivals today. But, thanks to her resources and to the industrial skill of her people, she could still hold her own if unhampered. But the exactions and restrictions of trade unions and the socialistic policy of all the political parties is proving too much for industry. Unfortunately, only a few enlightened persons read the economic cause of our industrial depression aright, and they carry no weight with the multitude. The politicians move in a vicious circle. Trade is depressed by state interference and they seek a remedy in further interference. The time was bound to come when this crowded island should reach the limit of population. It is coming much more rapidly because of the causes mentioned.

The Cost of Radium: The Belgian Monopoly

The high price of radium continues to be discussed in the press and further interviews have been held with the Belgian company—the Union Minière du Haute Katanga—which holds virtually the world monopoly. The *Daily News* sent a special correspondent to Brussels to ascertain what the radium monopolists had to say. His report discloses an adamant attitude on their part. He hoped to learn that the price of so important a factor in the treatment of cancer might be expected to go down. M. G. L. Lechien, director of the company, quickly disillusioned him. "Speaking for myself," he said, "the price at which radium is now sold to hospitals, $50,000 a gram, is too low. At such a price the margin of profit is not adequate. We are determined not to raise the price while it can be avoided, but when the ore becomes less rich there will be no alternative. Already, as we anticipated, the ore is not as good at it was." When taxed with the report that the company makes over 150 per cent profit on the sale of radium, he avoided making any direct reply and said: "If the profit is so enormous, why don't other companies go into the business?" Asked to explain how it happens that, although the Belgian product is said to be twenty-six times as rich as that found in the United States, the company had been able to reduce the price only to half that formerly charged by the United States, he said "It is not true that all our ore is twenty-six times as rich. It varies very much, and we are now, as I said, coming to ore considerably less rich." "Is it possible to say what is the cost of production?" "No, we don't know it exactly ourselves; radium is merely a side-line with us. Copper is our real business."

However, cheaper radium is promised by a decision arrived at in London to float, in the autumn, a company with a capital of $7,500,000, to be called English and Overseas Radium Merger, Ltd. It is proposed to acquire interests from existing radium concerns in Cornwall, Australia and Czechoslovakia. The erection of a modern radium plant in Cornwall is also planned. It is said that the new company will do all in its power to produce radium within the empire at a price far below the present quotation, and to make the hospitals as far as possible independent of foreign sources.

Exaggerated Belief in Efficacy of Radium in Cancer

At the annual general meeting of the British Empire Cancer Campaign, Sir Thomas Horder, in submitting the annual report for adoption, said that the international cancer conference had

already been fraught with important results, but the greatest result of all had been the impetus given to cancer study and research throughout the world. One effect was the crystallization of the accumulated experience reported at the meetings in regard to the relative efficiency of radium in certain cases. This helped much to stimulate the formation in this country of a national radium fund. He would sound a note of warning. The launching of the fund might cause many people who, while intelligent, were uninitiated in medicine to have an unfounded belief in the complete potency of radium as a cure for cancer. Such a belief might have unfortunate results for the patient when the growth was completely removable by operation. In time, and as the result of further improvement in technic, possibly also in combination with other methods of treatment, it might well be that radium would come to equal, or even to exceed, operative measures in efficiency. At present, however, it was the duty of the physician, in many cases, in his patient's interest, to overrule his not unnatural antipathy to surgical measures. All the same, the number of cases to which radium was applicable, and the number in which brilliant results were achieved, increased every year. But he doubted whether many of the institutions advertising for money wherewith to purchase radium had on their staffs those qualified to use it. An important duty devolving on the radium commissioners would be to satisfy themselves that those into whose hands this powerful but dangerous remedy was placed had been properly trained in its use. It might even be necessary to employ some of the money collected in providing for such training.

A National Maternity Service

Dame Janet Campbell, senior medical officer for maternity and child welfare at the ministry of health, in her official report, declares that, out of 1,083 infantile deaths investigated, 774 of the children were either born dead or died during the first month of life, and that unless and until good midwifery, in its widest sense, is available for all mothers, many lives that might be saved will continue to be lost. Midwifery in working class homes, she adds, cannot be properly carried out unless it is subsidized in some way. Much has already been done, but not enough. Suggested remedies include a national maternity service, such as that recently proposed by the British Medical Association. Dame Janet Campbell made the investigations as the English part of an international inquiry instituted by the League of Nations. "We are sometimes inclined to think," she writes, "that the present machinery for supervising infant health and welfare is relatively complete and satisfactory. An inquiry of this kind brings home to us forcibly how much yet remains to be done before it can be said with truth that the pregnant woman and the young infant are receiving all the support and all the assistance due to them from the community if the children of the nation are to multiply and prosper." After urging the necessity for improving the general sanitary environment, and particularly the housing, she also suggests as measures to secure a further reduction in the infant death rate: 1. A well organized maternity service available for every woman who cannot afford to provide adequate facilities for herself, including: (*a*) effective prenatal supervision; (*b*) adequate attendance at childbirth by well trained and competent physicians and midwives; (*c*) hospital provision for all abnormal or complicated cases, and (*d*) whatever supplementary assistance may be required before, during or after childbirth with a view to protecting and safeguarding the health of mother and child. 2. The extension and development of home visiting and infant welfare centers so that these may be fully available for all mothers, with a view to the better education of the mother and the protection of the child from avoidable disease or infection. 3. A domiciliary nursing service for minor and major infantile maladies. 4. An increase in hospital accommodation for infants who cannot properly be nursed at home.

PARIS

(From Our Regular Correspondent)

Sept. 2, 1929.

Statistics on Smallpox

M. Camus, director of the Institut supérieur de vaccine at the Paris Academy of Medicine, stated recently, at a session of the academy, in the name of the Commission de la vaccine, that the statistics on smallpox are very poorly kept. There are always disagreements between the necrologic figures supplied by the administration and those furnished by the departmental commissions on vaccination. That is the condition, notwithstanding the fact that the general secretary of the prefecture presides over these commissions. Prof. Léon Bernard remarked, in this connection, that no sanitary statistics were exact, and that was very unfortunate from the standpoint of public health. The Academy of Medicine took note of the conclusions of the Commission de vaccine and requested that official statistics be approved by the departmental commissions. Henceforth, there will be only one figure furnished for the statistics, and it is to be hoped that, under these conditions, it will be accurate.

Aberrant Localizations of Schistosomes in Man

It is known that depositing the ova of *Schistosoma haematobium* in the vesical mucosa causes the elimination, in the urine, of ova with a polar spur, and that placing the ova of *Schistosoma mansoni* in the rectal mucosa causes the elimination of ova, in the stools, with a lateral spur. It has long been accepted that urinary bilharziasis and bilharzic cystitis imply the presence of *Schistosoma haematobium*, and that intestinal bilharziasis, dysentery and bilharzic rectitis are due to *Schistosoma mansoni*. This common conception has recently suffered seriously from broadside attacks by Léger and by Khouri. M. Jean Raynal, adjunct professor of bacteriology at the Ecole de médecine coloniale de Marseille, has again taken up this important problem of tropical pathology and has shown that aberrant localizations of schistosomes occur in man. He made observations on a thousand Senegal and other native soldiers, examined especially from the standpoint of bilharziasis, and has divided them into three groups from the standpoint of localization of schistosomes. He divides each of the three groups into different classes according to the various combinations of parasites that one may encounter. The first group comprises the carriers of *Schistosoma haematobium* in the stools. Three possible types may be observed: (1) carriers that have the ova of *Schistosoma haematobium* only in their stools (observations of Neveux, Léger, Lefèvre and others); (2) carriers that have the ova of *Schistosoma haematobium* and of *Schistosoma mansoni* in their stools at the same time (observations of Turner, Khouri and others), and (3) carriers that have *Schistosoma haematobium* in the stool and the urine at the same time (observations of Bouffard and Neveux, Léger and others). The second group comprises the carriers of *Schistosoma mansoni* in the urine. Here, too, several types may be observed: (1) the carriers that have the ova of *Schistosoma mansoni* only in the urine (observations of Clapier, Léger and others); (2) the carriers that have the ova of *Schistosoma mansoni* and *Schistosoma haematobium* in the urine at the same time (observations of Peyrot, Clapier, Khouri and others), and (3) the carriers that have *Schistosoma mansoni* in the urine and the stool at the same time (observations of Joyeux). The third group comprises subjects who carry *Schistosoma mansoni* in the urine and *Schistosoma haematobium* in the stool simultaneously. This group is small, only two cases of mixed infection being known. In the two cases, the ova of the two schistosomes were found simultaneously in the urine and in the stool. M. Jean Raynal points out that the aberrant localizations are difficult to explain even though one admits that, contrary to the usual form, elimination of the ova of these

parasites may occur simultaneously from the bladder and the rectum. M. Léger has set up two hypotheses in an attempted explanation, one to the effect that we may be dealing with a new type of bilharziasis, and a second based on the assumption that a special intermediary host, such as a particular gastropod in certain regions, might be capable of modifying the habitual tropism of the schistosomes. The aberrant localizations of ova of the schistosomes appear to be found exclusively on the continent of Africa, where the two endemic manifestations of *Schistosoma haematobium* and of *Schistosoma mansoni* are found. They are, however, not very frequent except in certain places of central Africa. Intestinal localizations of *Schistosoma haematobium* are encountered most frequently, whereas the presence of *Schistosoma mansoni* in the urine is much more rare. In Madagascar, as in America, there is only one type of bilharziasis due to *Schistosoma mansoni*, with a localization almost solely intestinal, according to observations.

Item in the History of Medicine

It is often difficult to do justice to every one in giving recognition to those who make scientific discoveries. M. Louis Sauvé, chief surgeon of the Maison municipale de santé in Paris, has recalled that, just an even century ago (in 1829), Dr. Récamier, a physician celebrated at that time but now more or less forgotten, operated on a woman with cancer. Sauvé has called attention, at the same time, to the remarkable discoveries made by this physician, who was a relative of Brillat-Savarin and a cousin by marriage of the famous Madame Récamier, concerning whom M. Edouard Herriot, former French prime minister, has written a well known book. Dr. Récamier was, to a certain extent, the precursor of the modern surgeon and the earliest advocate of gynecologic surgery. During the summer of 1829, in a room of the Hôtel-Dieu, which had been transformed into an operating room, and in the presence of eminent surgeons, he had operated on a woman suffering from cancer. Many years before the discovery of surgical anesthesia and antisepsis, he succeeded in performing hysterectomy by the natural route. This operation was again brought into honor, more than fifty years later, by the French surgeon Péan. Among other ideas of Récamier, it may be mentioned that, in 1806, he introduced the method of treating infectious diseases—more particularly, typhoid, pneumonia and puerperal fever—by means of cold baths. Aside from the temperature, he administered these baths as is done at the present time. The use of cold baths was otherwise unknown at that time; they were later recommended by Brandt and by Glénard. Likewise, Récamier has to his credit the invention of the speculum, the description of several gynecologic disorders, the regulation of the technic of curettage and colpotomy, and researches on the pathology of the pelvis. He described also the two-stage operation on hydatid cysts, and operated in purulent pleurisy according to an excellent technic. Récamier died in 1852, soon after general anesthesia was introduced, and twenty years before the discovery of aseptic surgery. What would not this genius have done, says M. Louis Sauvé, if he had lived a few years later.

Sanitary Aviation

Sanitary aviation constitutes one of the most effective modern means of bringing medical aid—either by the transportation of physicians to the spot where they are needed, or by transferring the patient or the injured person to a place where he will receive aid. Mention has already been made of the great service the airplane has rendered in Morocco and, in a general way, is capable of rendering in regions in which the wounded or injured are far from medical aid, and especially in regions in which the roads and means of communication are inadequate. By reason of these facts, a society called "Les amis de l'aviation sanitaire" has recently been created among the pioneers of aerial transportation. The committee is composed of MM. Chassang, Foveau de Courmelles, Nemirovsky, Mlle. Marvingt, and MM. Julliot, Charlet, Dubois and Le Cour. The new society will constitute a permanent national organization, whose object will be, through appropriate researches, to develop and to perfect all equipment pertaining to sanitary aviation. It will study, among other things, the best means of adapting commercial and postal planes to the purposes of sanitary aviation. Furthermore, the society will become a center of information and publicity, of which all persons interested in sanitary aviation may avail themselves at any time, and will be in a position to make proposals to the public authorities, to builders of airplanes, and to promoters of airways.

Dr. Dumoulin's Memory Honored

The memory of Dr. Dumoulin of Sarcelles (Seine and Oise), who died a victim of service during an epidemic, has been honored by a gold medal.

AUSTRALIA

(From Our Regular Correspondent)

Aug. 30, 1929.

Child Welfare Training Essential for Maternity Nurses in Queensland

It has long been realized that a serious weakness in the child welfare movement lay in the faulty training of the newborn babe during the neonatal period. During this critical time the maternity nurse reigns supreme, and by the time that the mother has left the hospital or the nurse has moved on to her next case, avoidable difficulties have arisen, and the problem for the infant welfare center has increased in magnitude. Two common mistakes that were made were, first, to give the child castor oil to "clear out the meconium" and, second, to feed the child on sweetened cow's milk pending the establishment of lactation.

To remedy this serious breach in the infant welfare program, the Queensland nurses' registration board has provided for not less than six months' training at the child welfare training center for all nurses holding only midwifery certificates, and not less than four months' training for nurses holding general, general and midwifery, and mental certificates.

The curriculum of instruction and lectures embraces the antenatal and postnatal care of the mother and child. The practical side deals with the preparation of artificial foods, weaning, the use of feeding utensils and the actual care of the mother and child.

Sir Frederick Truby King

Two significant events occurred in New Zealand this year: the Plunket child welfare movement "came of age," and New Zealand's infant mortality rate achieved the world's record low figure of 36 per thousand births. Twenty-one years ago, it was 75 per thousand. It is not difficult to associate the significance of these two items, and one is justified in seeing in both the guiding hand of Sir Frederick Truby King, the founder of the Plunket scheme of mothercraft and child welfare which, introduced in New Zealand, has been widely adopted throughout the world.

It might be said that, in the past, the rank of a man of science could be determined by the extent of the opposition to his theories. It is gratifying to note that more recent trends have been in the direction of openmindedness on the part of the scientific world. One has in mind the acceptance of the insulin treatment of diabetes and the liver therapy of pernicious anemia. But twenty-one years ago Sir Truby King had difficulty in overcoming the scoffing insouciance of many who dubbed him a crank and a fraud. He had all the patience of the born investigator. He studied the natural laws which governed the growth of plants and animals and applied them to the most valuable animal of all, the human baby.

It was in the control of gastro-enteritis that he achieved his most signal success. In Dunedin, the site of the first effort, the death rate from infantile diarrhea dropped from 25 per thousand in 1907 to less than 1 per thousand in 1922. Over the same period, the tally in Christchurch was reduced from 45 to 2. It has been argued that New Zealand enjoys some special immunity owing to some unusual geographic and climatic conditions. The main contention is that an equable and moderate temperature operates in favor of the dominion, but this theory is given pause to by the fact that the death rate among young children is and has been lower in tropical Queensland than in Tasmania.

This elderly gentleman—he has now turned 70 but has the brisk, spruce air of a colonel of 50 in a Pinero comedy—has been long telling young members what to do, with an ingratiating simplicity of verbiage that admits of no misunderstanding. What he has said has often the sound of a platitude, but it has also the virtue of a truth.

Sir Truby King, among other things, was the pioneer of the syndicated health bulletin. At regular intervals he caused to be published in every newspaper of the dominion a simple talk on wise ways in mothercraft. Born at New Plymouth, New Zealand, Frederick Truby King took the degrees of M.B. and B.Sc. at Edinburgh University, where he was an Eccles scholar. He was director of child welfare for New Zealand from 1921 to 1927, the government making a yearly grant of about £30,000 to keep the movement alive and bustling. Afterward he was inspector-general of mental hospitals for two years, and was able to collect much evidence as to the mental effects of malnutrition. His C.M.G. came to him in 1917 and his knighthood followed in 1925, but surpassing all these honors are the recognition of such fellow savants as Professors Pinard and Marfan of Paris, and the salutes of hundreds of thousands of mothers whose lives have been made happy by his teaching.

Training Requirements for Queensland Masseurs

Any one who has been practicing as a masseur for three years prior to October, 1928, and who can satisfy the board of his competence shall be eligible for registration, but any others are required to undergo a detailed course of instruction for two years. The new legislation does not make registration of masseurs compulsory, but registration is regarded by the board as a hall mark of competence. A person practicing as a masseur who claims to be registered by the board, but is not, becomes liable to a penalty.

Instruction will be given in the elements of biology, physics, physiology and anatomy. The anatomy course includes lectures, dissections and demonstrations throughout the first year and for the first fifteen weeks of the second. There must be 75 per cent of attendances.

The second year is mainly devoted to hospital practice, five months being spent in the wards, five months in the outpatient department, and two months at a children's hospital.

The Wholemeal Bread Argument in Australia

In contradistinction to Great Britain and America, where the white versus wholemeal bread controversy seems to have involved the medical profession, the milling interests and the scientific nutrition authorities, there has been insufficient advocacy of wholemeal bread in Australia to warrant any organized opposition by the millers.

Perhaps the most prominent advocate of wholemeal bread has been the city health officer for Melbourne, Dr. Dale, who prescribed a ration of wholemeal bread fortified with milk powder, oranges and butter as being the basis of a government issue for the unemployed.

In some other Australian communities, medical enthusiasts have developed a local demand for wholemeal bread which the bakers have attempted to satisfy, but the white loaf has never been challenged in popular favor.

The medical correspondent of the Brisbane *Daily Mail,* in a recent issue, dealt with the problem of staple food nutrition in a balanced and rational manner. Apparently influenced by the researches of Alvarez, he warned the "lean kine" that bran and residue-producing foods were not for them. His solution of the problem was to return to the white flour before baking slightly more than the original proportion of wheat embryo that was in the whole grain. "What the miller has taken asunder," he tersely summarized, "the baker can put together." The danger of sweeping food reforms that had no scientific foundation was stressed on account of the interference with milling and baking practice. He suggested the description "standard" bread for the embryo-reinforced product.

BERLIN

(From Our Regular Correspondent)

Sept. 7, 1929.

Health Conditions in Germany

(Concluded from page 1080)

The variations in the infant mortality rates as reflected in the municipalities of different size are given in table 1.

TABLE 1.—*Variations in Infant Mortality Rates*

Size of Municipality	No. of Infant Deaths per Hundred Living Births	
	1926	1927
More than 100,000 population	9.1	8.9
From 50,000 to 100,000 population	9.5	9.3
From 30,000 to 50,000 population	9.4	9.0
From 15,000 to 30,000 population	9.9	9.3
Under 15,000 population	10.6	10.0
German reich as a whole	10.2	9.7

The mortality of illegitimate infants has, in recent years, decreased somewhat more rapidly than that of legitimate children. But, with a mortality rate of 15.8 per hundred illegitimate living births in 1926, it was still two thirds higher than the mortality rate for legitimate children, which was 9.4. The mortality of children of the 1 to 4 age groups, in spite of its marked decline in the years 1924 and 1925, was reduced in 1926 by more than one tenth, as compared with 1925, the rate being, for boys, 6.9, and for girls, 6.2. The mortality rate of school children aged 5 to 14 was, in 1926, only slightly under that for the previous year, being 1.6 for boys and 1.4 for girls. The reduction in mortality extended in like manner to persons of both sexes during the years usually considered to represent an earning capacity (15 to 70), as shown in table 2.

TABLE 2.—*Reduction in Mortality of Persons Aged from Fifteen to Seventy*

Year	Mortality per Thousand Living Persons at the Age of					
	15–29		30–59		60–69	
	Males	Females	Males	Females	Males	Females
1925	3.8	3.3	8.3	7.2	35.1	30.4
1926	3.6	3.1	8.1	7.0	35.0	29.9

The age groups above 70 show a slight increase in mortality. In 1925 the mortality per thousand for men of those ages was 102.5 and for women, 96.8, which, in 1926, was increased to 105.0 and 98.1, respectively.

As usual, according to the mortality conditions of the years 1924-1926, the mortality of unmarried persons, widowers and widows, and divorced persons, especially in the age groups up to 50, was essentially higher than that of married persons. In the case of the men, the difference amounted commonly to more

than 100 per cent, and in the women only to from 10 to 60 per cent.

The mortality of women, as compared with that of men, of the same age and family status, was, in general, more than 25 per cent lower, especially in the age groups 15 to 70, with an earning capacity, except that the mortality of married women

TABLE 3.—*Causes of Death*

Causes of Death	The Number of Deaths 1926	1927
Diseases of circulatory organs	112,009	119,859
Senility	80,904	81,499
Cancer	66,255	68,945
Tuberculosis	61,408	59,037
Diseases of the digestive tract	56,980	52,703
Pneumonia	55,548	60,415
Congenital lack of vitality and developmental defects	43,887	43,091
Cerebral hemorrhage	39,388	40,803
Other diseases of the nervous system	29,398	28,477
Accidents	23,384	24,861
Diseases of urinary organs and genitalia (exclusive of venereal diseases)	18,485	19,811
Suicide	16,480	15,974
Influenza	16,194	29,269
All other causes	114,039	112,276
Totals	734,359	757,020

of child-bearing age, up to about age 40, exceeded that of married men by about one fifth, but after age 40 it dropped below the mortality rates for men.

THE MORBIDITY AND THE MORTALITY FROM INDIVIDUAL DISEASES

The statistics for the whole German *reich* on the causes of death give the distribution of deaths, for the years 1926 and 1927, as shown in table 3.

DISEASE GROUPS

Epidemic Diseases.—Of the six scourges, cholera, yellow fever and plague were not observed in the German *reich* in 1927, nor in recent years. There were only sporadic cases of leprosy, typhus and smallpox: two cases of leprosy, six of typhus and four of smallpox. The number of officially reported lepers living in the German *reich* at the end of the year 1927 was ten.

Transmissible Diseases.—No cases of glanders were observed in 1927. There were no cases of rabies, although the number of persons bitten by supposedly infected animals was 214. The decline of rabies from 2,343 persons bitten and forty-one cases of rabies in 1924 proves the good effects of the prophylactic measures and the inoculations of the persons bitten. Ten cases of trichinosis were reported in 1927, one of which proved fatal. The number of cases of anthrax in 1913 was 236; in 1923, 101; in 1926, 105, and in 1927, 211, of which twenty-two were fatal. Of the 211 patients, 117 became infected while slaughtering

TABLE 4.—*Infectious Diseases of Children*

Name of Disease	Total Deaths in German *Reich* from Disease Cited	Number of Deaths per 10,000 Population	Deaths in Prussia per 10,000 Population 1926	1927
Scarlet fever	964	0.2	0.2	0.3
Measles and rubella	3,926	0.6	0.7	0.7
Croup and diphtheria	2,189	0.4	0.4	0.5
Whooping cough	5,884	0.9	0.9	0.8

diseased animals, fourteen through contact with infected animal carcasses, fourteen through the transportation and warehousing of infected hides and skins, thirty-nine through handling and manipulating hides and skins; eleven through dealing with hair, bristles, wool, and the like, or in manipulating them, while the source of infection in sixteen cases could not be ascertained.

Infectious Diseases of Children.—After infectious diseases of children, during the inflation period, had declined in an unprecedented manner, the cases of scarlet fever are again increasing, doubtless occasioned to some extent by the increased danger of transmission in the schools, which are now better attended in the lowest classes, and by the more accurate notification of instances of infection. In 1926, 56,146 cases of scarlet fever were reported in the German *reich,* and in 1927 the number increased to 91,883. The morbidity curve of measles shows, however, only short epidemic flare-ups, and the curve of diphtheria shows little variation from the pleasing postwar minimum. The number of diphtheria cases in the German *reich* in 1926 was 30,299 and in 1927, 33,890. The mortality from whooping cough in 1926 fell below the rate of 1 death per 10,000 of population recorded during the postwar period. Table 4 gives statistics for the German *reich* in 1926 and for Prussia in 1926 and in 1927.

The mortality from scarlet fever and from diphtheria was comparatively low, one in sixty dying of the former and one in fourteen from the latter disease. The diseases mentioned are much more fatal in infants and young children.

Table 5 gives the number of infant deaths per 10,000 of population, in 1913 and in 1926, and the number of deaths among children aged 1 to 4, in 1914 and 1926.

It is apparent, therefore, that the mortality from scarlet fever and diphtheria is much lower than during the prewar period, whereas, the decline in the mortality in measles and whooping cough was considerably less.

There were about 100 more cases of spinal meningitis in 1927 than in the previous year, the records showing 830. The number of deaths from that cause increased from 417 up to 474. In

TABLE 5.—*Deaths of Infants and Children*

Name of Disease	Infant Deaths per 10,000 Population 1913	1926	Deaths Among Children Aged 1 to 4 per 10,000 Children of Same Age 1914	1926
Scarlet fever	2.3	0.4	5.9	0.9
Measles and rubella	22.6	13.2	6.7	4.5
Croup and diphtheria	6.8	2.7	12.8	2.5
Whooping cough	42.5	34.1	5.7	3.5

the autumn of 1927, infantile paralysis became more prevalent. Throughout the German *reich,* there were, in 1927, 2,723 cases, which resulted in 363 deaths. The number of cases existing at one time was 500, on the average. In 1928, the number of cases of infantile paralysis dropped to 998.

RIO DE JANEIRO

(From Our Regular Correspondent)

Sept. 15, 1929.

Radiology in the Study of Tuberculosis

Dr. Manoel de Abreu, in an address delivered recently before the National Academy of Medicine, discussed the usefulness of radiology in the study of tuberculosis. In establishing the diagnosis and prognosis, as well as in determining the evolution of the disease, radiology is of more value than auscultation, percussion and some other methods. The speaker said that the radiologist should chiefly investigate the volume of the shadows, their anatomic and pathologic constitution, and their evolution. The volume of an infiltrated area is the product of the square of the surface multiplied by the amount of accentuation of the radiologic image. Chronic tuberculosis is characterized early by an inflammatory reaction which develops more or less rapidly and reaches a stage of relative equilibrium in which infiltration either stops temporarily or decreases in progress. The process of infiltration reaches its stage of relative equilibrium in from fifteen to sixty days after the beginning of the disease, and then

presents its "initial" volume. Resistance to the organism is proportional to the time of evolution and inversely proportional to the volume. Generally speaking, 80 per cent of the cases which present their initial volume at less than 2 per cent are "regressive," that is, they show a spontaneous recovery. They demand an early diagnosis, however; especially an early radiologic diagnosis and strict sanatorium treatment. There are two types of infiltration: one gives images with an exudative appearance, the other with a productive appearance. The speaker considered many phases of his subject, and mentioned that the amount of retraction occurring in an area depends on the extent of fibrosis. The importance of retraction has led Dr. de Abreu to attempt "fibrometry"—that is, evaluation of the grade of fibrosis.

The Treatment of Slightly Infested Persons in the Campaign Against Ancylostomiasis

Dr. Samuel R. Pessoa recently published a paper on the care of persons slightly infested with *Ancylostoma*. He said that in the interest of the population as a whole in congested districts Darling had advised that two treatments be given to each man, woman and child. Smillie and Augustine have said that it is sufficient to treat the patients until a satisfactory result is reached and then eradicate the remaining infestation by education of the people. Cart has said that a person with only one or two worms is no more a victim of the disease than a child with one or two lice on his head is a victim of pediculosis. Thus the inference has been drawn that there is no need to treat slightly infested persons (carriers of from one to 100 worms) and children of less than 6 years. This advice has been followed for a long time. Clayton Lane, however, has demonstrated that treatment without diagnosis is nonscientific, that estimating the number of worms by counting the ova is inexact, and that the harm caused from worms depends on the condition of the patient. Dr. Pessoa believes that dissemination of these truths will improve rural sanitation. The author reaches the following conclusions:

1. It has not been proved that slightly infested persons are not a danger to the public health (C. Lane). 2. The criterion of slight infestation has a wide variation because of individual resistance, and the complicating effects of alcoholism, malnutrition and malaria. Children frequently present symptoms not in keeping with the number of worms which they harbor. 3. In normal persons, a small number of worms may cause marked blood changes. 4. The ancylostoma do not behave in the human body as simple parasites but exert a destructive, traumatic and bacteria-producing action. 5. In sanitary campaigns against ancylostomiasis, the physician should apply the treatment not only to heavily infested persons but also to slightly infested persons, the so-called carriers. When children are infested, regardless of their age, they should be treated to the point of microscopic recovery.

Cholecystography

Dr. Saint-Pastous recently delivered an address on cholecystography before the Sociedade de Medicina e Cirurgia of Rio de Janeiro. He mentioned the clinical importance that cholecystography has assumed as a diagnostic factor and emphasized the indications for its use. He pointed out its possibilities and limitations, and referred to several cholecystographic apparatuses. He stated that negative cholecystograms may be due to the following causes: serious hepatic insufficiency which interferes with the elimination of tetraiodophenolphthalein; obstruction of the cystic duct and gallbladder, caused either by stones or by extrinsic compression (due to tumors or adhesions); retraction of the gallbladder in sclero-atrophic cholecystitis; simple cholelithiasis or cholecystitis with marked alteration of the mucosa of the gallbladder.

Marriages

LINWOOD LAYTON RIGHTER, Philadelphia, to Mrs. Elizabeth Reading Hughes of Haverford, Pa., at Seaside Park, N. J., August 26.

ADOLPH S. GABOR, Bethlehem, Pa., to Miss Lillian Evelyn Safka of Philadelphia, at New York, September 10.

LAWRENCE WILLIAM GREGORY, Philadelphia, to Miss Madeline Clarine Gutfleish of New York, July 22.

CORNELIUS LEO DELOHERY, Danbury, Conn., to Miss Anna Gertrude Wood of Philadelphia, September 7.

JACOB FREDERICK CRANE, Rome, Ga., to Mrs. Grace Dewer Parnell of Lewisville, Minn., September 25.

EVERETT M. BESSIE, New York, to Miss Rose Bernice August at San Antonio, Texas, October 2.

ARCHIE CRANDELL, Wooster, Ohio, to Miss Grace E. Stucke of Beaver, Pa., at Philadelphia, July 17.

HOMER J. ELKINS, Mounds, Ill., to Miss Ruth Dwyer Steuver of Indianapolis, September 2.

FRANK S. BOURNS, Seattle, to Miss Elizabeth Ross Shonecker at Berkeley, Calif., August 24.

JAMES V. RICHART to Miss Irene Molter, both of Terre Haute, Ind., at Chicago, September 9.

WILBUR W. WILLIAMS, Coldwater, Mich., to Miss Nora Mott at St. Ignace, Mich., August 25.

FRANK M. HALL, Indianapolis, to Miss Opal Jenkins, at Bloomington, Ind., September 7.

ROBERT BOYD MCIVER to Miss Ida A. Holmes, both of Jacksonville, Fla., September 4.

WILLIAM EDWIN FOREE to Miss Ann Lorine Williams, both of Athens, Tenn., August 22.

SAMUEL D. LIEBERMAN, Brooklyn, to Miss Dora I. Abrams of Flushing, N. Y., June 30.

EDWARD ROSE, JR., Philadelphia, to DR. ELIZABETH KIRK of New Castle, Pa., July 6.

HARRY ZUCKERMAN, New York, to Miss Anne D. Wiener of Philadelphia, August 18.

LEON W. KELSO, Paxton, Ill., to Mrs. Harriet Edwards of Carlinville, September 7.

LYLE B. KINGERY to Miss Marion Jacobs, both of Portland, Ore., September 10.

JAMES VERLE LAMMY, Detroit, to Miss Edna Lucille Seidel, September 13.

FRANCIS T. CARNEY, Johnstown, Pa., to Miss Demaris Hoffman, June 4.

JOHN F. BLECHER to Miss Sue Nissley, both of Middletown, Pa., July 27.

Deaths

William Thomas Belfield ⊕ Chicago; Rush Medical College, Chicago, 1877; chairman of the Section on Genito-Urinary Diseases of the American Medical Association, 1911-1912; emeritus professor of genito-urinary surgery at his alma mater; past president of the Chicago Medical Society, the Chicago Institute of Medicine, the American Association of Genito-Urinary Surgeons, the Chicago Urological Society and the American Urological Association; member of the American College of Surgeons; on the staffs of the Henrotin, Presbyterian and Cook County hospitals; pioneer in suprapubic prostatectomy; originated the treatment of seminal vesicle infections and radiography of the vesicle by way of the vas deferens; for many years a medical leader in the Middle West; aged 73; died, October 4, of acute dilatation of the heart and chronic myocarditis.

Louis William Johnston ⊕ Tuskegee, Ala.; Medical College of Alabama, Mobile, 1889; past president of the Medical Association of the State of Alabama, and the Macon County Medical Society; at one time member of the state board of health and state board of medical examiners; formerly bank president and mayor of Tuskegee, and member of the city council; on the staff of the Macon County Hospital; aged 65; died, September 14, in a hospital at Montgomery, of multiple infarcts of the right kidney.

Joseph William Holland ⊕ Baltimore; University of Maryland School of Medicine, Baltimore, 1896; clinical professor of surgery at his alma mater; member of the American College of Surgeons; first vice president of the Medical and

Chirurgical Faculty of Maryland; formerly superintendent of the University Hospital and the Baltimore City Hospital; aged 59; died, September 1, of cerebral hemorrhage, while on board a steamship en route from London to Montreal, Que., Canada.

Daniel E. Kiess, Hughesville, Pa.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of Pennsylvania; formerly bank president; for many years medical inspector of the schools of Hughesville; on the staff of the Muncy (Pa.) Valley Private Hospital; aged 65; died, August 30, of cerebral embolism and arteriosclerosis.

Albert Goldspohn ✠ Naperville, Ill.; Rush Medical College, Chicago, 1878; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the American College of Surgeons; formerly on the staffs of the Evangelical Deaconess and the Cook County Hospital, Chicago; aged 77; died, September 1, of cerebral hemorrhage.

Andrew Mansergh Outerson, Hartford, Conn.; Jefferson Medical College of Philadelphia, 1906; member of the Connecticut State Medical Society and the American College of Surgeons; on the staffs of St. Francis Hospital, Manchester Memorial Hospital, South Manchester, and the Rockville (Conn.) City Hospital; aged 53; died, September 3.

Benjamin Beardsmore Rowley, Milwaukee; Rush Medical College, Chicago, 1912; member of the State Medical Society of Wisconsin, and the Central Neuropsychiatric Association; served during the World War; aged 40; on the staff of the Columbia Hospital, where he died, August 22, of septicemia, pneumonia and cirrhosis of the liver.

Bernard Stanilus Moore, Syracuse, N. Y.; Medical Department of the University of the City of New York, 1889; served during the World War; at one time health officer and coroner; formerly on the staffs of the Onondaga General and St. Joseph's hospitals; aged 65; died, August 20, of cerebral hemorrhage.

Cyrus Edmund Marlette, Haynesville, Ala.; Louisville (Ky.) School of Medicine, 1881; member of the Medical Association of the State of Alabama; formerly health officer of Lowndes County; aged 71; died, July 4, in Montgomery, of peritonitis, following an operation for appendicitis.

John H. Burch ✠ Syracuse, N. Y.; Homeopathic Hospital College, Cleveland, 1884; member of the American Roentgen Ray Society; on the staffs of the Syracuse Memorial, St. Joseph and the General hospitals; aged 65; died suddenly, August 30, of heart disease.

Andrew Meek Mayfield, El Dorado, Ark.; University of Arkansas School of Medicine, Little Rock, 1906; member of the Arkansas Medical Society; on the staff of the Henry C. Rosamond Memorial Hospital; aged 47; died suddenly, August 20, of cerebral hemorrhage.

Walter Floyd Fry, Johnson City, Tenn.; Marion-Sims College of Medicine, St. Louis, 1901; veteran of the Spanish-American and World wars; on the staff of the Mountain Branch of the National Home for Disabled Volunteer Soldiers; aged 53; died, May 20.

John Byron Wilson, Berkeley, Calif.; California Eclectic Medical College, Los Angeles, 1903; member of the Nevada State Medical Association; aged 60; died, May 3, at the Berkeley General Hospital, of skull fracture received when struck by an automobile.

Frederick Alexander Stokes, Tuskegee, Ala.; Medical Department, University of Indianapolis, 1898; served during the World War; aged 45; on the staff of the U. S. Veterans' Hospital, number 91, where he died, August 26, of acute nephritis.

Ernest Titus Dean Howell, Los Angeles; Columbia University College of Physicians and Surgeons, New York, 1906; member of the California Medical Association; aged 46; died, June 24, of edema of the lungs and chronic myocarditis.

Robert Walker Smith, Hertford, N. C.; University of Maryland School of Medicine, Baltimore, 1892; member of the Medical Society of the State of North Carolina; aged 61; died, September 7, of cerebral hemorrhage.

William Newton Bradford, Cambridge, Ohio; University of Louisville (Ky.) School of Medicine, 1893; formerly mayor; aged 62; died, August 8, in a hospital at Bowling Green, of injuries received in an automobile accident.

John J. Muldoon ✠ Chicago; Northwestern University Medical School, Chicago, 1894; obstetrician to St. Vincent's Infant Asylum and Maternity Hospital; aged 64; died, August 22, of carcinoma of the stomach.

William Leander McCreary, Knoxville, Tenn.; Homeopathic Hospital College, Cleveland, 1873; past president of the state board of medical examiners; aged 79; died, September 12, of carcinoma of the pancreas.

Helen Frances Taft Cleaves, Pacific Grove, Calif.; University of Michigan Medical School, Ann Arbor, 1900; member of the New England Society of Psychiatry; aged 66; died, February 27, of heart disease.

Carl Walther Bjorgo, Cannon Falls, Minn.; Rush Medical College, Chicago, 1918; member of the Minnesota State Medical Association; aged 47; died, May 7, at St. Paul, of septicemia and pyelonephritis.

Owen Melville Harrah, Alhambra, Calif.; Georgetown University School of Medicine, Washington, D. C., 1913; served during the World War; aged 39; died, March 4, of chronic nephritis and uremia.

Carson S. Roberts, Fallbrook, Calif.; St. Louis College of Physicians and Surgeons, 1892; formerly on the staff of the Missouri State School, Marshall, Mo.; aged 70; died, June 20, of angina pectoris.

George W. Whitney, Johnsville, Ohio; Ohio Medical University, Columbus, 1896; aged 73; died, September 9, at the Good Samaritan Hospital, Galion, of injuries received when struck by a train.

Patrick Michael Lynch ✠ Springfield, Mass.; Georgetown University School of Medicine, Washington, D. C., 1901; on the staff of the Mercy Hospital; aged 55; died, August 12, of angina pectoris.

Thomas Harvey Robinson, Kleinburg, Ont., Canada; Trinity Medical College, Toronto, 1883; for many years health officer and coroner for the township of Vaughan; aged 75; died, July 13.

Robert W. Tate ✠ Bolivar, Tenn.; Medical Department of Columbia College, New York, 1895; aged 56; died, September 6, at the Methodist Hospital, Memphis, of acute dilatation of the heart.

Eliza J. Hyndman, Bloomington, Ill.; Northwestern University Woman's Medical School, Chicago, 1897; aged 79; died, August 24, in the Blessing Hospital, Quincy, of arteriosclerosis.

Christopher C. Durham, Pineville, Ky.; Kentucky School of Medicine, Louisville, 1894; member of the Kentucky State Medical Association; aged 63; died, July 5, of myocarditis.

Hollis Alexander Wells, McComb, Miss.; Memphis (Tenn.) Hospital Medical College, 1910; aged 43; died, September 8, of acute nephritis, following influenza.

James Welch Guest ✠ Chicago; Bellevue Hospital Medical College, New York, 1888; aged 61; died, September 1, of toxemia and debility due to Hodgkin's disease.

Charles H. Young, Brooklyn; Medical Department University of Louisiana, New Orleans, 1874; aged 79; died, January 18, of acute cardiovascular renal disease.

Adolph H. Sundelson ✠ New York; University of Voronezh, Russia, 1896; aged 59; died, September 5, of chronic myocarditis and bronchopneumonia.

Samuel L. Tillery, Smithwood, Tenn.; University of Louisville (Ky.) School of Medicine, 1877; aged 78; died, July 12, of cerebral hemorrhage.

Walter Lee Austin, Waco, Texas; University of Tennessee College of Medicine, Nashville, 1881; aged 75; died, August 3, of heart disease.

John Ferdinand Schaefer, Colome, S. D.; Northwestern University Medical School, Chicago, 1908; aged 59; died, August 23, of heart disease.

Benjamin Mosby Smith, Los Angeles; University of Maryland School of Medicine, Baltimore, 1888; aged 72; died, May 4, of arteriosclerosis.

Julia Clara Loos, Baltimore; Woman's Medical College of Pennsylvania, Philadelphia, 1894; aged 60; died, August 28, of carcinoma of the breast.

Richard L. Igel, Los Angeles; University Medical College of Kansas City, Mo., 1901; aged 59; was killed, September 5, in an automobile accident.

John W. O'Connor ✠ Denver; Rush Medical College, Chicago, 1879; aged 76; died in August, at St. Joseph's Hospital, of myocarditis.

Samuel S. Haury, Upland, Calif.; St. Louis Medical College, 1889; aged 81; died, May 19, of chronic cardiovascular disease.

Lewis N. Plummer, Muscotah, Kan. (licensed, Kansas, 1901); aged 80; died, August 25, of angina pectoris.

Levi A. Hale, Clay City, Ind. (licensed, Indiana, 1897); aged 90; died, August 1, of cerebral hemorrhage.

Bureau of Investigation

THE W. R. DARLINGTON FRAUD

The Kuro Remedy Company's "Pile Cure" Debarred from the Mails

For some years W. R. Darlington of Kansas City, Missouri, has been selling an alleged cure for piles. There are reproduced with this article a few of Darlington's numerous advertisements from such publications as the *Police Gazette, Capper's Weekly,* Los Angeles *Times, Good Stories, Sovereign Visitor,* etc., and ranging in dates from 1922 down to 1928. As will be noticed, Darlington has been advertising under his own name over this period of years, although he has also used the trade names "Kuro Remedy Company" and "Kuro Company." However, in every advertisement of which record is available, Darlington's name has been used in connection with such trade styles.

On August 10, this year, the Kuro Remedy Company, Kuro Company and W. R. Darlington were called on to show cause, on September 11, why a fraud order should not be issued against them. No one representing either Darlington or his trade styles appeared at the time set for the hearing but a

written answer to the charges was forwarded by E. E. Hairgrove of Kansas City, Missouri, an attorney for Darlington.

The Solicitor of the Post Office Department, in a memorandum to the Postmaster-General, recommending the issuance of a fraud order, states:

"This enterprise, operated by William R. Darlington under his own name and under the trade names Kuro Remedy Company and Kuro Company, consists in selling through the mails of several preparations constituting what he represents as a 'cure' for piles. Darlington is the sole owner of the business, which he states was purchased by him from one Robert S. Hershner in 1922. He advertises in about forty-one papers, both dailies and weeklies, published in various parts of the country. The literature used by him has been prepared by various advertising agencies, based mostly on testimonials and on what he alleges to have been his personal experience with the medicines.

"These medical preparations are put up by Parke, Davis and Company at their Kansas City branch, and, according to Darlington, the ingredients of his 'pile treatment' are as follows:

"PILE TREATMENT TABLETS:—Tr. Horse Chestnut, 1 min.; R/ #S-272690, P. D. & Co.).

"COMPRESSED TABLETS:—Potassium Bitartrate, 4 Gr.; Sulphur Flowers, 7 Gr.; Ext. Cascara Sagrada, 1½ gr.

"PILE OINTMENT:—(R/ #S-287974, P. D. & Co.), F. E. Hamamelis Lvs., 1 fl. oz.; Balsam Peru, 120 gr.; Po. Fenugreek, 1 oz.; Wax and Petrolatum, *Qs.*

"The evidence shows that Darlington does a gross business of over $10,000 annually. He has three employees. He has had no medical training and employs no physicians, chemists or pharmacists. He uses a small symptom blank to ascertain, so he claims, whether there are any 'complications.' If he finds any, he states that he refunds remittances in those cases. The symptom blanks are passed upon by himself.

"In the operation of the business under consideration, Darlington uses considerable advertising literature consisting of form-letters, printed folders and other matter, containing many representations which I find from the evidence to be false and fraudulent."

The Solicitor's memorandum then gives a few typical claims made by Darlington, among which was the statement to the effect that Darlington himself was the "discoverer" of the "pile remedy," when, as a matter of fact, he purchased the business and the formulas from the former operator, Robert S. Hershner. The memorandum then continues:

"Darlington's literature contains many testimonials of alleged users, in which the most extravagant statements are made, such as that the writer was cured by the Kuro remedy after three operations had failed; in another instance, that a cure was effected after 'specialists' had failed; and, in still another instance, that the writer was cured after 25 years of suffering.

"In a form-letter used by Darlington, he represents that, by the use of his Kuro treatment, piles and such diseases and ailments as fistula, tuberculosis, or even rectal cancer may be prevented."

The Solicitor then briefly outlines the facts regarding this business, as set forth in the testimony that was given by medical experts, showing that Darlington's alleged cure was wholly worthless, as such, and sums up the entire matter with the statement that the scheme is one for obtaining money through the mails by false and fraudulent pretenses.

In recommending the issuance of a fraud order, the Solicitor expresses the opinion that an order issued against the trade names used by Darlington will effectively suppress the scheme and he does not, therefore, recommend that the fraud order be extended to cover Darlington's own name. This seems unfortunate in view of the fact that for years Darlington has been doing business under his own name and defrauding the public. A fraud order was issued September 18, 1929, against the Kuro Remedy Company and the Kuro Company, but not against Darlington.

Correspondence

THE BLUE-DOMED CYST OF CHRONIC CYSTIC MASTITIS IN THE BREASTS OF WOMEN

To the Editor:—When women consult their physicians the moment they experience a new sensation in the breast, or feel something there that they have not felt before, or see something unusual about the appearance of the nipple, the incidence of cancer will be found to be less than 17 per cent, the incidence of lumps that are not cancer more than 18 per cent, and the number of cases in which operation is not indicated more than 65 per cent. These figures, 17, 18 and 65, represent the total of the relative frequency of the three groups in my clinic today. This is an almost miraculous change from the figures of the cases recorded in the Surgical Pathological Laboratory of the Johns Hopkins Hospital from 1899 to 1900. Then cancer represented 80 per cent, benign lesions which had to be operated on 19 per cent, and benign lesions for which operation was not indicated 1 per cent of all cases recorded. This change is apparently due entirely to the enlightenment of the people.

When cancer is 80 per cent, the inoperability is more than 50, the five-year cures less than 10, with many late recurrences after operation and apparent freedom. When malignant disease is less than 17 per cent, inoperability is less than 4 per cent and curability is approaching 60 per cent.

Chronic cystic mastitis is somewhat like hypertrophy of the prostate, diffuse colloid goiter, or toxic goiter of the

exophthalmic type. The characteristic feature of this lesion of the mammary gland is activity of the epithelial cells of the parenchyma. Accompanying it there are changes in the character of the stroma and definite hyperplasia. This epithelial activity is bilateral. It may be diffuse in both breasts. It more often occurs in single or multiple isolated areas in one or both breasts. The epithelial activity gives rise to two distinct lesions —cysts of all kinds in which ultimately the epithelial lining disappears, and intra-acinous or intracystic papillomatous growth. In addition to these two advanced stages there may be great hypertrophy of adenomatous areas and dilatation of the ducts beneath the nipple. This parenchymatous change is always irregular, entirely different from lactation hypertrophy. It gives rise to single or multiple lumps in the breast, to palpable, wormlike masses beneath the nipple, to a bilateral enlargement of both breasts in which the breast tissue feels firmer than normal and is riddled with minute shotlike bodies ("shotty breast").

This lesion of the breast, chronic cystic mastitis, in all its forms is most commonly observed in women who consult their physicians within a month after noticing the first symptoms, and grows gradually less with each month of delay, because of its tendency to spontaneous resolution. Recurrences are frequent. The disappearing tumor of the breast is recorded in the oldest literature. The most common form of chronic cystic mastitis is a single smooth-walled cyst containing clear or cloudy, never hemorrhagic, fluid in which as a rule the epithelial lining has disappeared. This cyst gives rise to a single palpable tumor which feels spherical and most frequently fluctuates. It transilluminates clear. When both breasts are carefully and frequently palpated, they are lumpy, and these little lumps are due to areas of chronic cystic mastitis (increased adenomatous areas, groups of minute cysts or dilated ducts). The large cyst is rarely associated with marked dilatation of the ducts beneath the nipple or with the advanced diffuse type of chronic cystic mastitis, which I have described as the shotty breast.

When one explores a single tumor of the breast, because there are no clinical signs of cancer, and divides the tissue carefully and slowly, and suddenly exposes a blue dome, the diagnosis of benignancy is practically assured (THE JOURNAL, Oct. 5, 1929, p. 1056). The blue dome may be brought to light after the subcutaneous fat or a zone of breast tissue has been divided, or it may even be present behind the breast. The moment the cyst is nicked, the color disappears. In excising this cyst one may expose every type of breast tissue—normal, senile, fatty or any degree of chronic cystic mastitis. The most marked gross appearances are minute cysts, dilated ducts, or the pink elevated ducts of adenomatous hypertrophy.

I gather from the last monograph of 482 pages (Fibro-Adenomatosis Cystica Mammae and Its Relation to Other Pathological Conditions of the Mamma, Especially Cancer, by Carl Semb, Oslo, 1928) from the clinic of Professor Francis Harbitz, Oslo, that the majority of students still fear the possibility of cancer being associated with this lesion of the breast, and the natural result is removal of one or both breasts. In the *Archives of Surgery* (**3**:445 [Nov.] 1921) I presented the evidence against the conclusion that chronic cystic mastitis is a precancerous lesion. In the last few months I have reviewed the experience since 1921. The most common cause of benign lesions of the breast for which operation is not indicated (THE JOURNAL, March 25, 1922, p. 859) is chronic cystic mastitis. This gives rise to the lumpy breast, single definite and indefinite lumps in one or both breasts, the characteristic shotty breast. Here the breast has a distinct edge, feels riddled with shot, and may have a saucer shape, and the dilated ducts beneath the nipple are not difficult to recognize. In my publication in 1921, I recorded that most of these breasts were operated on. In my own clinic since then this group has rarely been operated on unless there is a definite single tumor which demands exploration and frozen-section diagnosis.

The blue-domed cyst is the most common cause of a definite single tumor in the breast the seat of chronic cystic mastitis. This tumor will be encountered most frequently in lesions of the breast of less than one month's duration. Its blue dome is characteristic of its presence and its benignancy. Unfortunately, frozen sections as well as permanent sections of chronic cystic mastitis in whatever form or degree can be differentiated from cancer only by those surgical pathologists who have made a special study of this disease and have checked their microscopic conclusions with the ultimate result in the patient.

The best evidence of the benignancy of chronic cystic mastitis is the final result in those breasts from which a zone of breast tissue containing a blue-domed cyst or some other type of chronic cystic mastitis has been removed, and both breasts saved. My records show that the incidence of cancer in this group is no larger than in any group of women of the same age and over the same period of time. Cancer may occur in chronic cystic mastitis just as it may occur in the senile breast or the lactating breast. For this reason every single, definite tumor should be explored.

When enlightened women consult physicians or clinics within one month after the first warning of trouble in the breast, the medical profession will be forced to improve their sense of palpation, because the first difficulty is to find a single definite lump that should be explored, and this should occur in not more than 35 per cent of the cases. The second is the recognition of a malignant condition in the frozen section, because in 50 per cent of these explored lumps cancer should be excluded and the breast saved. There is no question that a differential stain which will distinguish the cancer cell from the cell that is not cancer would be as helpful as the Wassermann reaction in syphilis and the metabolism test in toxic goiter.

JOSEPH COLT BLOODGOOD, M.D., Baltimore.

TANNIC ACID FOR BURNS

To the Editor:—In view of the recent literature on the treatment of burns with tannic acid, I was interested to learn that ink has been a household remedy in the treatment of burns for many years in the Philippine Islands. Since most black inks are weak solutions of gallotannate of iron, this is another example of justification of the empiric use of an old home remedy.

I have seen two cases in which ink was used as a first aid application in the treatment of burns: one on the island of Corregidor, another in Zamboanga on the island of Mindanao. The first was a severe first degree burn of more than two thirds of the body, in which an unfavorable prognosis was given. To my surprise, however, the child recovered. The other was a mild burn which healed promptly.

On questioning some of the older natives in different barrios, I ascertained that ink has been used by their mothers and grandmothers, and is considered a sovereign remedy for burns.

C. A. STAMMEL, M.D.,
Pettit Barracks, Zamboanga, P. I.
Captain, M. C., U. S. Army.

Developmental Changes.—Modern medicine is alive, as never before, with investigative energy and independence of thought. Today is an age of rebellion against standardization not only in medicine but in industry, art, religion and, in fact, every phase of civilization. Tradition is being sometimes too lightly cast aside. But it is certain that this virus of unrest has infected medical minds to a degree, and these modern minds are studying disease from constantly new angles. The developmental aspect of disease is one of the most refreshing attitudes and one worthy of adoption by every clinician.—Cornell, B. S., *J. Indiana M. A.*, July, 1929.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VASOMOTOR NEUROSES

To the Editor:—All four children of a family are suffering apparently from angioneurosis. Different parts of the body develop sharp pain, some discoloration, ecchymosis and slight swelling. There is no fever; the tonsils, heart and lungs are normal. This condition reappears at irregular intervals and is worse during summer. Each attack continues some days or a week and passes off. Hot applications do not help and cold helps temporarily. Please give me your opinion, also your line of treatment. Kindly omit name.

M.D., California.

ANSWER.—The data submitted permit only a general discussion of the condition described. The patients referred to seem to belong to the general group of vasomotor neuroses. Both Curschmann and Oppenheim recognize a hereditary factor in the occurrence of angioneuroses. Diehl cites a family in which angioneurotic conditions affected several generations.

In certain children particular foods are apt to induce a sudden localized swelling, for instance, of one limb or of some part of the face. Sometimes no obvious cause is to be found for the edema, which may recur many times in various parts of the body in the same child. Obviously such a condition bears a close relation to urticaria, which is equally bizarre in its causation, but may be related also to another group of diseases namely, certain varieties of purpura. In some cases of purpura transient edema occurs, quite localized and quite irregular in distribution, exactly resembling angioneurotic edema. Probably this whole group is on an anaphylactic basis.

The skin lesions are inconstant. Urticaria may occur in one outbreak; subsequently urticaria and purpura may be associated and, later still, angioneurotic edema may be present. The condition may be associated with pain or tenderness over the skin eruption or with visceral lesions such as asthma, nephritis and hematuria, intestinal colic and hemorrhage from the bowel. Arthritis also may occur.

Treatment consists in the avoidance of the particular food or other cause known to produce the attacks. Calcium lactate also is worthy of trial. For immediate relief, hypodermic injections of small doses of epinephrine may be employed. Atropine in minute doses, from $\frac{1}{1.000}$ to $\frac{1}{500}$ grain by mouth, may be repeated several times a day. Ephedrine in small doses may be tried. For the relief of local irritation antipruritic lotions should be used.

CONGENITAL OSTEOSCLEROSIS

To the Editor:—Can you give me any information prosthetically? A primipara was delivered by cesarean section, after twenty-six hours of hard labor, of a female child whose head has no suture lines; the posterior fontanel is closed; the anterior fontanel is just a depression and the parietal bones are very prominent. The bones not only of the head but throughout the remainder of the body seem to be much harder than normal; and the cranium itself is hard and well formed, except in the parietal region as noted. Are there any such cases on record? What is in store for this infant in the future? Will the head enlarge proportionately with the rest of the body? Please omit name.

M.D., New York.

ANSWER.—Congenital obliteration of sutures and absence of fontanels has been described by the older authors. Hyrtl the anatomist and Virchow considered the condition in some detail. Virchow erroneously considered synostosis of sutures at the base of the skull as a causal factor in the production of cretinism and he thought it a factor in the causation of idiocy. It has also been stated that cranial synostosis is a factor in the causation of idiocy and epilepsy.

Early closure of sutures and fontanels occurs in microcephalic idiots and also in some congenital syphilitic children.

Kaufman states that deafness, blindness and the loss of the olfactory sense may occur as the result of early closure of the cranial sutures.

In some cases the head may be long and narrow (dolichocephalic). Others maintain that steeple skull, or oxycephaly, may occur because of early cranial synostosis. In the latter instance the cranial and facial bones are involved. The accessory nasal sinuses remain rudimentary or absent. The maxillae are undeveloped and the growth of the brain may be inhibited.

In the query under consideration, not only the cranial but also the skeletal bones are involved. This leads to the assumption that the condition is a generalized one and may be classified as congenital osteosclerosis.

Three cases were reported up to 1913. Assman performed a necropsy on a child, aged 1 day, and found sclerosis in the long bones, ribs and skull. The bones were ivory hard, the epiphyses were broadened, and the skull as well as the dura was markedly thickened. In this instance the thymus and thyroid were large. Assman found definite evidence of generalized lymphatic hyperplasia which he took to indicate a lymphatic constitution. He also found the bone marrow compressed and reduced in quantity and he considered this due to an intra-uterine injury to the bone marrow. The same author also found diffuse osteosclerosis in myeloid as well as in lymphatic leukemia.

M. B. Schmidt performed a necropsy thirty hours post partum. He found a large thymus and hypophysis. The long bones, the vertebrae, the skull bones and the sternum were thickened. Goodall did a necropsy on a baby, aged 10 weeks, who before death showed pallor, epistaxis, hematemesis, diarrhea and enlarged liver and spleen. There was a marked anemia and 75,000 white blood cells. In this case there was also osteosclerosis of the long bones and of the skull. The marrow cavity was filled with calcified material.

It is impossible to foretell the fate of these patients. In many of the recorded cases death has occurred in infancy. Other patients have developed severe anemia or leukemia; some have developed microcephalus or oxycephaly. There is no evidence at hand to preclude the possibility of recovery or an arrest of the process.

HAND CREAM—GENERAL ELECTRIC COMPANY

To the Editor:—My attention has been called to "Hand Cream No. 406" put out by the General Electric Company. Might I ask whether this remedy is to be used for skin trouble, or is it simply a protective "cream"? Please omit name.

M.D., Columbus, Ohio.

ANSWER.—Inquiry was sent to the General Electric Company; Dr. L. A. Hawkins, executive engineer, replied as follows:

"We have your inquiry concerning our 'Hand Cream No. 406.' This cream is not at all a 'secret remedy.' It is neither secret nor is it a remedy. It is simply a protective soap to use on the hands before exposing them to oil, grease or other materials which stain them. The cream, when rubbed into the hands, forms a slightly adhesive film which keeps the oil or grease from the skin and which washes off readily with soap and water. While this is its most common use, it is also used to some extent in some of our factory departments to protect the hands of the workers against certain solvents in our varnishes and lacquers which are slightly irritating to the skin.

"We have found it a great convenience in our own work, and therefore decided to offer it, in convenient form, to the public.

"The formula for the cream is as follows:

Gum arabic	4 pounds
Soap chips (laundry soap)	19 pounds
Water	74 pounds
Hydrous wool fat	2 pounds
Acid red (small amount to color)	
Oil of lemongrass	128 Gm.

"The gum arabic is to make the cream slightly adhesive. The soap chips are inexpensive, of the kind used in laundry tubs on washday. The acid red and the oil lemongrass are added to make the color and odor pleasing.

"If any further information is desired, we shall be glad to supply it."

SODIUM CYANIDE IN INDUSTRY

To the Editor:—An industrial company uses 2 ounces of caustic potash and 7 ounces of sodium cyanide to a gallon of water in their plating department. Men get this solution on their hands and arms. Every few days one reports with widely distributed irregularly shaped hyperemic splotches, which they call "burns." These itch and generally break through the first layers of skin into superficial ulcers. Some seem far more susceptible than others. Which chemical does the damage? What is the best first aid treatment? What is the best follow-up treatment?

E. O. HARROLD, M.D., Marion, Ind.

ANSWER.—Both of these chemicals are irritants, but under the circumstances mentioned in the query greater significance is to be attached to sodium cyanide. This chemical acts as a direct skin irritant. The damage to the skin is, however, of increasing greater severity if repeated minor ulceration is produced. Eventually, intractable ulcers may be produced which have proved to be fertile soil for carcinogenic agents. On this account the prevention and control of cyanide ulceration is of greater importance than ordinary chemical burns.

So far as possible, exposure should be limited, through the use of long sleeve, solution-proof, snug-fitting gauntlets. These may be obtained in solution-proof fabric form or as made from rubber. At the first showing of inflammation exposure should be discontinued, the offending chemical should be washed off

with saturated solution of boric acid, and wet dressings of this substance should be applied during the hyperemic stage. At a later time applications of zinc oxide (10 per cent) in olive oil has led to satisfactory results. In well established ulceration it may be desirable to use such dyes as scarlet red for the promotion of epithelization.

Good industrial medicine warrants the elimination, or shifting, of workers who are very susceptible to cyanide ulceration. This is for their own protection, lest highly resistant impairment take place.

Through the use of spot suction, protective garments, and appropriate tools, the greater portion of the danger of cyanides in plating may be eliminated.

TROCHANTERIC BURSITIS

To the Editor:—A girl, aged 18, complains of a more or less constant and occasionally painful "clicking" over each trochanter noticeable on walking or during exercise. She has noticed the condition for about three years. She has allowed herself to concentrate on the condition, walking about with her hands on her hips feeling for the inevitable click. There is nothing of importance in the past history. She has never had rheumatism or arthritis. There is no history of trauma and no seasonal variation. A year ago she had a tonsillectomy performed without change in the condition. She is a well developed girl, slightly overweight and in excellent physical condition. All symptoms are negative on examination. Joints do not appear to be involved, though no roentgenograms were taken. The local condition is not obvious on inspection. When the finger tips are placed on the trochanters there is a definite click in the subcutaneous parts when she walks or raises the thigh. No loose bodies can be felt, nor is any pain felt on manipulating the joint. There is no grating over the trochanters and no evidence of acute disease. After exercise she notices the condition more—a game of tennis makes the clicking almost audible. I believe the condition to be a chronic trochanteric bursitis. Do you know of any other condition that might give such symptoms? How would you treat such a case? Would injections of quinine and urea hydrochloride be of value in this case. Please omit name.

M.D., New Jersey.

ANSWER.—This is evidently a case of chronic trochanteric bursitis, which may be due to injury or infection. It might have been due to compression or irritation from clothing. It is, however, probable that this girl has a so-called snapping hip which involves the relationship between the tensor fasciae femoris and the great trochanter. The band of tissue snaps back and forth over the great trochanter. There may be an acetabular irregularity or a disproportion between the head of the femur and the acetabulum, which may have been due to one of several causes, one of which is an old epiphyseal disturbance of the head of the femur. Roentgenograms are indicated to prove or to disprove, whether pathologic changes are present. Proof will have a definite psychologic effect on this type of individual. There can be no objection to injections of quinine and urea, but if this is a bursitis a mixture of camphor and phenol is more efficacious.

REACTION TO VACCINATION

To the Editor:—Is there any immune reaction to typhoid vaccine similar to the immune reaction to smallpox vaccination? I have seen redness around the area more marked in those persons who have frequently had the injections of vaccine before.

THOMAS D. MCCRUMMEN, M.D., Austin, Texas.

ANSWER.—When foreign protein is injected into the animal body the tissues are sensitized, so that a subsequent injection of the same protein may be followed by a local and perhaps a general reaction. Familiar examples are the reactions which follow the repeated injections of foreign serums in animals such as guinea-pigs, and the increased sensitiveness to serum when persons are given repeated doses. Persons previously sensitized may be desensitized by repeated small doses of the same foreign serum.

Theoretically one might expect an increased sensitiveness to result from the repetition of immunization by typhoid vaccine. It sometimes happens, however, that the second of the customary three doses of killed typhoid bacilli, which is twice as large as the first, gives a less marked reaction than the first and it is also occasionally noted that the reactions following a later series of injections are less than those experienced by the patient some months or years previously. The degree of reaction to bacterial protein of typhoid vaccine differs greatly in different persons; some have marked swelling and redness of the arm with distinct constitutional symptoms, malaise or headache, while others receiving the same dose of the same vaccine have only a slight local and no general reaction. Persons vary so much both individually and at different times in their sensitiveness to typhoid as well as to other bacterial vaccines that it seems doubtful whether increased reactions after a second series of typhoid vaccine would have diagnostic significance comparable to the immune reaction that occurs at the site of inoculation of living cowpox vaccine in a person already successfully vaccinated.

INDICATIONS FOR ORTHODONTIA

To the Editor:—A girl, aged 12 years, delicate and not well developed, has teeth which are markedly out of line. The family dentist, a man of many years' experience, advises no intervention. Another reliable dentist advises leaving them alone until the child is fully developed. An orthodontist urges immediate intervention. Is it not true that a great deal of the orthodontia now being done on children is not needed and, in many instances, harmful? In any case not causing wound or irritation, is it not better to wait until the jaw is fully developed? I realize that specific instances present a variety of problems but would appreciate your advice in a general way. Please omit name.

M.D., Washington.

ANSWER.—To answer this question intelligently would necessitate seeing the child or casts of her teeth and jaws. As a rule it is best when there is much irregularity in the arch to correct it early. Twelve years of age is none too early provided the child is in reasonably good health, since the bone is softer at this age, so that the teeth are more easily moved and the jaws can be expanded at the same time, giving more room for the incoming teeth. If the irregularity is slight, one should wait in the hope that nature will correct it.

FISCHER'S SOLUTION—RINGER'S SOLUTION—DIURESIS

To the Editor:—Please advise me through your column the composition of Ringer's and Fischer's solutions. Which is preferable for promoting diuresis?

ABRAHAM TRUMPER, M.D., Montgomery, Ala.

ANSWER.—Fischer's solution is composed of sodium carbonate, crystallized (not the U. S. P. monohydrated form), 10 Gm.; sodium chloride, 14 Gm.; water to make 1,000 cc. (10 Gm. of crystallized sodium carbonate is equivalent to 4.3 Gm. of Monohydrated Sodium Carbonate, U. S. P.).

Ringer's solution was described in Queries and Minor Notes (THE JOURNAL, July 11, 1925, p. 135) as follows:

"When a solution is isotonic with the blood, it has the same osmotic pressure as that of blood (this varies often, depending, for example, on whether it is referred to frog's tissues or to mammalian tissues). The official physiologic solution of sodium chloride is isotonic with the blood, though containing only one ingredient.

"In work particularly on excised tissues, the deleterious effects of single salt solutions have led to the introduction of solutions containing other ions, thus better adjusted to the physiologic requirements. These balanced solutions are of less importance for injections in living animals, in which even single salt solutions are rapidly adjusted by exchange with the tissues and tissue components.

"The mixture employed by our correspondent is slightly hypertonic. The formula for Ringer's solution usually given in textbooks is:

Sodium chloride	0.7	per cent
Potassium chloride	0.03	per cent
Calcium chloride	0.025	per cent

"It has been shown, however, that if such a solution is made slightly alkaline it offers a still more favorable medium for the heart. As used in physiologic laboratories when adapted to frog's hearts, the following formula is employed:

Sodium chloride	0.6	per cent
Potassium chloride	0.0075	per cent
Calcium chloride (dried)	0.01	per cent
Sodium bicarbonate	0.01	per cent

"For mammalian purposes, a concentration often used is:

Sodium chloride	8.5 Gm.
Potassium chloride	0.3 Gm.
Sodium bicarbonate	0.2 Gm.
Calcium chloride (crystals)	0.2 Gm.
Water	1,000 cc.

"The formulas for Ringer's solution vary in minor details, according to different sources.

"In making a Ringer's solution containing both sodium bicarbonate and calcium chloride, the sodium bicarbonate must be completely dissolved before adding the calcium chloride (also dissolved in water) to avoid precipitation. Obviously, therefore, it would be incompatible to have these ingredients in a single powder or tablet. A number of pharmaceutical manufacturers do carry a "Ringer's tablet" in which there is no sodium bicarbonate. These are intended for use in preparing isotonic solutions of certain local anesthetics."

Both solutions are suitable for promoting diuresis, and it is doubtful whether a choice could be made between the two. Much, of course, would depend on the condition of the patient and the amount of fluids taken.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

AMERICAN BOARD OF OPHTHALMIC EXAMINERS: Philadelphia, Oct. 21, 1929. Sec., Dr. William H. Wilder, 122 South Michigan Ave., Chicago, Ill.

ARKANSAS: Little Rock, Nov. 12-13, 1929. Sec. Reg. Board, Dr. Sam J. Allbright, Searcy, Ark. Sec. Eclec. Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark.

CALIFORNIA: Sacramento, Oct. 21-24, 1929. Sec., Dr. Charles B. Pinkham, 420 State Bldg., Sacramento, Calif.

FLORIDA: Miami, Nov. 19-20, 1929. Sec., Dr. William M. Rowlett, 812 Citizens Bank Bldg., Tampa, Fla.

HAWAII: Oct. 14, 1929. Sec., Dr. James A. Morgan, Room 48, Young Building, Honolulu, Hawaii.

IOWA: Des Moines, Nov. 7-9, 1929. Mr. H. W. Grefe, Iowa Dept. of Health, Des Moines, Iowa.

MAINE: Portland, Nov. 12-13, 1929. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland, Me.

MINNESOTA: Minneapolis, Oct. 15-17, 1929. Sec., Dr. E. T. Sanderson, 524 Lowry Medical Arts Bldg., St. Paul, Minn.

MISSOURI: Kansas City, Nov. 12-14, 1929. Sec., Dr. James Stewart, Capitol Bldg., Jefferson City, Mo.

NEVADA: Carson City, Nov. 4-6, 1929. Sec., Dr. E. E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, Oct. 14-15, 1929. Sec., Dr. William T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

NORTH CAROLINA: Durham, Nov. 27, 1929. Sec., Dr. J. W. MacConnell, Davidson, N. C.

SOUTH CAROLINA: Columbia, Nov. 11, 1929. Sec., Dr. E. A. Boozer, 505 Saluda Ave., Columbia, S. C.

South Carolina June Examination

Dr. A. Earle Boozer, secretary of the Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 25-27, 1929. The examination covered 17 subjects and included 75 questions. An average of 75 per cent was required to pass. Twenty-nine candidates were examined and passed. Seven physicians were licensed through reciprocity with other states and one by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Jefferson Medical College		(1928)	91.6, (1929) 91
University of Pennsylvania School of Medicine		(1929)	90.1
Medical College of the State of South Carolina		(1929)	83.3, 84.1, 84.3, 85.1, 85.6, 86.2, 87, 87.3, 87.3, 88, 88.6, 89.2, 89.5, 90, 90.1, 90.1, 90.3, 90.3, 90.8, 91.1, 91.3, 92.6, 93.1, 93.1
Meharry Medical College		(1928)	77.1
Medical College of Virginia		(1928)	88.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Med.	(1915), (1926) (2),	(1927)	Georgia
University of Georgia Medical Department		(1927)	Georgia
College of Physicians and Surgeons		(1885)	New Jersey
Medical College of Virginia		(1924)	N. Carolina

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Virginia Department of Medicine		(1925)	N. B. M. Ex.

Missouri June Examination

Dr. James Stewart, secretary of the Board of Health of Missouri, reports the written examination held at St. Louis, June 12-14, 1929. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. One hundred and six candidates were examined, 105 of whom passed and one failed. The following colleges were represented:

College	PASSED	Year Grad.	Total No.
Howard University School of Medicine		(1928)	1
University of Georgia Medical Department		(1927)	1
Northwestern University Medical School	(1928) 1, (1929) 1		2
University of Illinois College of Medicine		(1929)	1
State University of Iowa College of Medicine		(1928)	2
St. Louis University School of Medicine	(1928) 5, (1929) 57		62
Washington University School of Medicine	(1926) 1 (1927) 1, (1928) 6, (1929) 26		34
Meharry Medical College		(1928)	1
University of Tennessee College of Medicine		(1928)	1
FAILED			
Dragomanow Institute Faculty of Medicine, Kiev		(1922)*	1

* Verification of graduation in process.

Louisiana June Examination

Dr. Roy B. Harrison, secretary of the Board of Medical Examiners of Louisiana, reports the written examination held at New Orleans, June 13-15, 1929. The examination covered 12 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-two candidates were examined and passed. Three physicians were licensed through reciprocity with other states. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1928)	85.8*
Tulane University of Louisiana School of Medicine		(1927)	86.6, (1928) 84, 87.9, 91.1, (1929) 84.5, 85, 85.8, 85.9, 86, 86.2, 86.3, 86.3, 96.3, 86.4, 86.6, 86.6, 86.8, 87, 87.3, 87.4, 87.4, 87.4, 87.5, 87.6, 87.9, 87.9, 87.9, 87.9, 88.2, 88.2, 88.3, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.7, 88.7, 88.8, 88.8, 88.8, 88.9, 89, 89, 89.2, 89.3, 89.3,* 89.3, 89.4, 89.4, 89.6, 89.6, 89.6, 89.8, 90, 90.1, 90.5, 90.5, 90.7, 90.8, 90.8, 91.6, 91.8
St. Louis University School of Medicine	(1928) 85.5, (1929)		88.4, 87.4
Washington University School of Medicine		(1928)	91.5
University of Nebraska College of Medicine		(1928)	89.7
University of Tennessee College of Medicine		(1922)	85.0
Royal University of Naples Faculty of Med. and Surg.		(1923)†	75.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1926)	Arkansas
University of Oregon Medical School		(1924)	Oregon
University of Copenhagen Faculty of Med., Denmark		(1901)	Washington

* This candidate has completed four years' medical work and will receive his degree and license on completion of one year internship.

† Temporary license pending completion of citizenship.

OPPORTUNITIES IN THE STUDY OF PATHOLOGY IN GERMAN-SPEAKING EUROPE

SIDNEY FARBER, M.D.
Instructor in Pathology, Harvard University Medical School
BOSTON

Germany, recovered from its postbellum depression, is again well established and organized in scientific work, and is once more playing host to American medical students and physicians. Especially in the field of pathologic anatomy, in which Germany has long occupied a position of great importance, has the pendulum swung into its normal rhythm. The pathologists, who during the war had busied themselves with the diseases peculiar to the war, and the study of the immense and unfortunate amount of "normal" material, now have, in addition to the routine work, the task of explaining many new disease variations on the basis of the hardships and privations of the war. The horrible depression of 1920-1923, during the period of the inflation of the mark, brought with it economic chaos not only to the great majority of the people of the nation but also to the scientific institutes. Recently, through the aid of forces both outside and inside Germany, a definite change for the better can be seen. Some new institutes are being built, old ones are being remodeled, and better apparatus and laboratory supplies are available.

By no means is the economic status of the institutes on an ideal plane. Expensive research in most places must be supported by special "emergency" funds, and the assistants are, as a rule, poorly paid. (In one large institute, an assistant of five years' standing receives 300 marks—$75 a month—without room and maintenance.) The lot of the instructors and professors is somewhat better, depending to a great extent on the number of students who attend their lectures.

The indelible impression made on my mind (I worked in Germany also during the first part of this decade) is that, despite the miserable economic conditions which have prevailed in the homes and the institutes, despite the lack of equipment and supplies, despite the grave outlook of the country as a whole and of the laboratory workers in particular, scientific work has continued with much the same energy and spirit as before the war. True, in the early years after the war, envious glances were cast toward the more fortunate country across the

sea. This is readily understandable. Quite rare, indeed, is the view that American research is accomplished by means of a remarkable machine, into one end of which are shoveled gold dollars and out of another opening of which are vomited finished pieces of research.

The war, as far as hatred for the erstwhile enemy America is concerned, is forgotten. There remains only an undercurrent, among the students and younger physicians, of hatred of an indefinable something that influenced their lives and tinged their experiences with misery, pain and sorrow. Among the older men, the private opinions vary with the personal war experiences, amount of information, political knowledge, and nonmedical intellect. Suffice it to say that the subject of the war is not heard within the institute walls.

Austria has gone through much the same experiences as Germany and, in some ways, has fared worse. Reduced from a huge nation to a tiny land of five million people, faced with miserable economic conditions and an uncertain future, it reveals but little of this in its institutes. Work goes on as ever, and the smiling Viennese remarks, with dignity, "We are all poor."

The German-speaking institutes of Switzerland (which include all except Geneva and Lausanne) are also taken into consideration in the following remarks. Prague (Czechoslovakia) supports a German-speaking institute, and so is also included in this paper.

PREREQUISITES TO FOREIGN STUDY

For those who would like to study pathology in Europe, the first requisite is a good speaking and reading knowledge of the language. Although most German pathologists speak and read English, a foreigner cannot expect instruction in his native tongue. If the visitor possesses only a slight acquaintance with German, he should remedy that deficiency by taking the regular university language courses for foreigners, or studying with a private tutor. No institute accepts foreigners unless they have a good command of the German language.

The second requisite is the knowledge of what one wants to do, where he wants to do it, and how long he wants to study. The roving foreigner is not popular, because he does not remain long enough in one place to learn much about the men and the institute. He takes up the valuable time of the workers, without giving the chief the opportunity of putting the stamp of his particular school of teaching on the visitor.

The third requisite is a certificate of medical graduation and either a personal or a general letter of introduction from some responsible pathologist in America. The latter facilitates matters greatly and gives the prospective chief an idea of the qualifications and character of the visitor. Unqualified and undesirable visitors can thus be sifted out.

During the hours when one is not at work, it is of great value to learn something about the country and the people, their customs, ideals, habits and character. Personal association with the institute workers, with Germans in other lines of endeavor, visits to the opera, theater and museums, and week-end trips into the surrounding country should all receive an allotment of time. The greater the understanding and sympathy the visitor has for the country and its people, the more he will enjoy, and benefit from, his work. The primary essential to such understanding and sympathy is the strict avoidance of odious comparisons with "things at home," and the realization that one is working in a foreign country, with different ideas, habits and customs—that criticism and comparison demand a fundamental knowledge.

REASONS FOR FOREIGN STUDY

Why go to Europe to study pathology? The reason lies in, and varies with, the individual. In general, because of the

Pathologic Institutes in German-Speaking Countries

City	Name of Institute	Address	Director	Number of Autopsies Yearly	Number of Children Examined Post Mortem	Institute Fee	Bacteriologic Department	Pathologic and Chemical Departments	Minimum Period of Work
			GERMANY						
1. Berlin *	Path. Institut des Virchow-Krankenhauses	Berlin Kaiserdamm 84	Prof. Dr. Anders	2,000	2-300	$25 per mo.	Yes	Yes	3 months
2. Berlin *	Path. Institut am Krankenhaus Moabit	Berlin N. W.	Prof. Dr. R. Jaffé	1,000	50-100	About $12.50 per month	Yes	Yes	3-4 months
3. Berlin *	Path. Institut am Krankenhaus Friedrichshain	Berlin N. W. 6	Prof. Dr. L. Pick	....	....	.....	....	....	.....
4. Berlin	Path. Institut der Universität Berlin	Berlin N. W. 6 Schumanstr. 20/21	Prof. Dr. J. W. Waetjen	1,300-1,400	300	$10 per mo.	Yes	Yes	6 months
5. Bonn	Path. Institut der Universität	Bonn	Gen. Hofrat Prof. Dr. W. Ceelen	300-400	....	None	No	Yes	12 months
6. Bremen	Path. Institut der Krankenstalt	Bremen Luenеburgerstr. 9	Prof. Dr. R. Borrmann	900-1,000	228	None	Yes	Yes	6 months
7. Breslau	Path. Institut der Universität	Breslau XVI Friedrich-Ebertstr. 6-8	Prof. Dr. F. Henke	....	....	.....	....	....	.....
8. Dresden	Path. Institut des Krankenhauses Dresden Friedrichstadt	Dresden Friedrichstr. 41	Geh. Med. Rat. Prof. Dr. G. Schmorl	2,000-2,500	200	$7.50 per mo.	Yes	No	6 months
9. Düsseldorf	Path. Institut der Medizin. Akademie	Düsseldorf Moorenstr. 5	Prof. Dr. P. Huebschmann	800	200	None	Yes	No	6 months
10. Erlangen	Path. Institut der Universität	Erlangen	Prof. Dr. G. Hauser	....	....	.....	....	....	.....
11. Freiburg i. B.	Path. Institut der Universität	Freiburg i. B.	Geh. Med. Rat. Prof. Dr. L. Aschoff	....	....	.....	....	....	.....
12. Frankfurt a. M.	Path. Institut der Universität	Frankfurt a. M. Gartenstr. 229	Prof. Dr. B. Fischer-Wasels	1,700	200	.....	No	Yes	6 months
13. Giessen	Path. Institut der Universität	Giessen Klinikstr. 32g	Prof. Dr. Georg Herzog	500-600	100	$12.50 per semester	Yes	No	6-12 months
14. Göttingen	Path. Institut der Universität	Göttingen Gosslerstr. 10	Prof. Dr. Georg B. Gruber	400-500	100-120	Small	To be built	To be built	6 months
15. Greifswald	Path. Institut der Universität	Greifswald	Prof. Dr. Ernst Leupold	....	....	.....	....	....	.....
16. Hamburg	Path. Institut der Universität	Krankenhaus Eppendorf, Hamburg	Prof. Dr. Th. Fahr	1,500-2,000	300	None	Yes	Yes	6 months
17. Heidelberg	Path. Institut der Universität	Heidelberg	Prof. Dr. A. Schmincke	950-1,000	150	$5 per mo.	Yes	Yes	3-6 months
18. Jena	Path. Institut der Universität	Jena	Prof. Dr. W. Berblinger	750-800	80	None	No	Yes	6 months
19. Karlsruhe †	Path. Institut des städt. Krankenhauses	Karlsruhe Maxaustr. 11	Prof. Dr. E. v. Gierke	400	Few	$10 per mo.	Yes	No	4 months

Pathologic Institutes in German-Speaking Countries—Continued

20. Kiel	Path. Institut der Universität	Kiel	Geh. Med. Rat. Prof. Dr. L. Jores	700	250	None	No	No	6 months
21. Königsberg i. Pr.	Path. Institut der Universität	Königsberg i. Pr. steinstr. 6	Prof. Dr. C. Kaiserling	....	....	.....	....	....	.....
22. Köln	Path. Institut der Universität	Köln-Lindenthal, Weyertalstr. 121	.....	....	....	.....	....	....	.....
23. Leipzig	Path. Institut der Universität	Leipzig, Rob. -Schumannstr 12 b	Prof. Dr. W. Hueck	2,000	300-400	$5 per mo.	Yes	Yes	12 months
24. Marburg	Path. Institut der Universität	Marburg Weissenburgstr. 15	Prof. Dr. M. Versé	....	....	.....	....	....	.....
25. München	Path. Institut der Universität	München Nussbaumstr. 26	Geh. Med. Rat. Prof. Dr. M. Borst	1,300-1,500	150	$2.50 per mo.	Yes	Yes	12 months
26. München *	Path. Institut des Krankenhauses rechts der Isar	München	Geh. Med. Rat. Prof. Dr. Hermann Duerck	650	Very few	None	Yes	No	9 months
27. München *	Path. Institut des Krankenhauses München-Schwabing	München Koelnerplatz 1	Prof. Dr. S. Oberndorfer	1,100	150	$10 per mo.	Yes	No	12 months
28. Münster i. W.	Path. Institut der Universität	Münster, Westring 17	Prof. Dr. W. Gross	250	125	None	Yes	Yes	12 months
29. Rostock	Path. Institut der Universität	Rostock	Prof. Dr. Walter Fischer	650	100	None	No	No	6 months
30. Tübingen	Path. Institut	Tübingen	Prof. Dr. Dietrich	400	50	$7.50 per mo.	Yes	Yes	3 months
31. Wiesbaden †	Path. Institut des städt. Krankenhauses	Wiesbaden Freseniustr. 17	Prof. Dr. G. Herxheimer	400-500	100	None	Yes	No	6 months
32. Würzburg	Path. Institut der Universität	Würzburg	Prof. Dr. M. B. Schmidt	600-700	120	$6.25 per semester	Yes	Yes	9 months
			AUSTRIA						
33. Graz	Path. Anat. Institut	Graz Wald gasse 28	Prof. Dr. H. Beitzke	1,600	320	$0.70 per mo.	Yes	No	3 months
34. Innsbruck	Path. Institut der Universität	Innsbruck Müllerstr. 44	Prof. Dr. F. J. Lang	500	100	None	No	No	6 months
35. Vienna *	Path. Institut des Krankenhauses Wien	Vienna XIII Wolkerbergenstr. 1	Prof. Dr. J. Erdheim	2,000	150	$2.80 per mo.	Yes	No	12 months
36. Vienna	Path. Institut der Universität Wien	Vienna IX Spitalgasse	Prof. Dr. Rudolf Maresch	3,000	400	$10 per mo.	Yes	No	1 semester
37. Vienna *	Path. Institut Krankenhaus Wieden	Vienna IV Favoritenstr. 40	Prof. Dr. Carl Sternberg	800	90	$4.20 per mo.	Yes	No	6 months
			SWITZERLAND						
38. Basel	Path. Anat. Anstalt Basel	Basel	Prof. Dr. Robert Roessle	781-891	72-119	$8 per mo.	Yes	No	12 months
39. Bern	Path. Institut der Universität	Bern	Prof. Dr. C. Wegelin	350-400	80-90	None	No	No	6 months
40. Geneva ‡	Institute Pathologique de l'Université	Geneva	Prof. Dr. M. Askanazy	600-700	60-70	Usually none	Yes	To be built	.....
41. Lausanne ‡	Institute d'anatomie pathologique	Lausanne	Prof. Dr. J. L. Nicod	....	....	Usually none	No	No	6 months
42. St. Gallen †	Path. Institut des Kantonsspitals	St. Gallen	Prof. Dr. Konrad Helly	370	70	None	Yes	Yes	6-12 months
43. Zurich	Path. Institut der Universität	Zurich	Prof. Dr. H. von Meyenburg	1,200	200	$10 to $20 per month	No	No	12 months
			CZECHOSLOVAKIA						
44. Prague	Deutsch. Path. Institut	Prague II, 497	Prof. Dr. Anton Ghon	....	....	.....	....	....	.....

* Not the main university institute. † No university in this city. ‡ Official language French.

almost universal autopsy rule, the number of postmortems is greater than in America, and the opportunity for performing autopsies is therefore better. Then, too, an individual may care to study with a certain man who has done special work in a given field. Finally, the lure of a new country, with new language, customs, ideas and methods, attract many to work in Europe. The value of the interchange of ideas and methods cannot be overestimated, and in itself is reason enough for those inclined to spend some time in their medical lives in work abroad. No comparison between American and European laboratories can be attempted here. Suffice it to say that it is not necessary to go outside the United States to learn pathology. There are enough other reasons to warrant such a step.

ARRANGEMENT OF STUDENT COURSES IN PATHOLOGY

Most medical schools follow the same curriculum in the arrangement of courses in pathology. The winter semester runs from about November 1 to March 1, and the summer semester from May 1 to August 1. There are slight variations in these dates in different schools. During one semester the head of the department usually lectures on general pathology five hours a week, and during the following semester, on special pathology, for the same number of hours. These lectures generally follow the time-worn pattern of didactic teaching and are usually richly illustrated by gross and microscopic specimens. An instructor ordinarily lectures on the work covered by the head of the department during the previous semester for those who wish to review the work again or who have been unable to hear those lectures, so that in most institutes both general and special pathology can be heard in any one semester.

A course in pathologic histology is given each semester in some places, and in others only every other semester. The sessions occur twice a week, two hours each time. The first hour is generally given over to a lecture, with lantern slides and chart demonstrations of the processes being studied, followed by an hour of practical work. In most places, students receive stained preparations, mount these themselves, and are permitted to retain their collection at the end of the course.

Twice a week, gross demonstrations of fresh material are held by the senior members of the institute. Museum specimens are used only to illustrate the main lectures. Collections of unmounted, Kaiserling-fixed specimens are not used. The students depend for their knowledge of gross pathology on the demonstrations and on autopsy courses. The latter are held several times a week; each student, working in rotation, sections one part of the body, under guidance, after demonstrations and lectures on autopsy technic have opened the course. Such an opportunity for teaching can be had only in an institute which has access to large amounts of material. This course is important in view of the fact that each candidate for the doctor's degree is required to perform a portion of an autopsy as part of his final examination.

In addition to these courses, each member of the teaching staff has the right to give a course, and hopes that students will attend. These courses may cover any of the special fields in pathology and will vary, of course, with the institute. In

some places, excellent small adjunct courses are held by assistant professors and instructors. For example, one such man holds a course in gross pathology, for a group of from ten to twenty students, with the Socratic method of teaching. A similar procedure is followed by him in a course in pathologic histology in which large numbers of slides are projected and discussed by the students.

Courses in histologic technic are usually given each semester.

It is easily seen from the foregoing that, in addition to the main lectures, the student has a wide choice of courses he can take to broaden his knowledge of the field. This end is also aided by the proper use of the vacation periods. Many students apply for special full-time work during their free time, and are accepted as "famuli" in the institute. The medieval system of the student (famulus) sitting at the feet of the master is still in vogue in Europe, with appropriate changes, of course. These famuli are permitted to perform autopsies, under direction at first, to make slides of their cases, and in general to accept responsibility and work. It is a splendid opportunity for the student.

THE ROUTINE OF THE INSTITUTE

The morning is usually devoted to the performance of autopsies, which, except in rare cases, are always done at that time. The lectures during the semesters are held in the course of the day. At the end of the morning, the chief or his representative holds the daily house demonstration for the institute staff, each operator demonstrating his own case. The demonstration follows a definite form. A routine method of sectioning the organs affords added uniformity and clarity. The chief comments and leads the discussion, and each member of the staff has the opportunity of viewing all the material and of taking part in the discussions. In addition, during the week, the clinicians come to the institute and view the organs of their own patients. These clinical demonstrations are mainly informal, and depend for their value on the interest of the clinician. At intervals the staff gathers and views the collected microscopic material. The slides are projected, and the observations discussed.

The afternoons are given over to the making of slides. Technicians do only special work. The making of routine slides falls to the voluntary assistants and famuli. Research work is usually carried on in the afternoons. A point of importance to American visitors is that they cannot depend on the institute technical force to make slides for their research problems. Such work must be done by the investigator himself or by special private arrangement with a qualified person.

In addition to the autopsy material, the surgical specimens are usually at the disposal of the members of the institute staff.

Bacteriologic and chemical laboratories are included in many, but not all, institutes, as indicated in the table.

The institute ordinarily houses the lecture and demonstration rooms, and is a separate and distinct unit in the medical school. The chief is the head of the teaching department. He may or may not be the prosector. Next in rank are an assistant professor (often the prosector), the instructors, and the paid assistants. The staff is completed by voluntary assistants, among whom would be listed the qualified American workers, and, lastly, the famuli.

In all large cities, in addition to the main institute of the university, other institutes, belonging to the other hospitals, are found. These are headed by an institute chief, who ranks usually as assistant professor in the faculty. These institutes frequently offer just as fine opportunity for work as the main institute. The university lectures during the semester are, of course, lacking in such places. They do offer the distinct advantage of being quieter and less sought after by the German physicians.

CHOICE OF INSTITUTE

The choice of the institute depends on the purpose one has in studying abroad. Often the man with whom one wishes to work is the deciding factor. Sometimes the amount of material, the opportunity for performing postmortems, the city, and the extra-laboratory attractions are deciding factors. Huge numbers of autopsies alone should not attract the visitor. The quality of the work must be taken into consideration.

For some, a small institute in a small city, with sufficient opportunity for work, would be the best choice. Others would prefer a large institute in a large city, with the attractions of large amounts of material, as well as the city itself. Often one can obtain more personal attention in an infrequently visited, small institute. Some large institutes extend the same opportunity.

Application for admission should be made to the head of the institute. The exact title, name and address are to be found in the tabulation. This can be written in English. The applicant's training and experience, as well as his knowledge of the German language, should be detailed.

In order to gather information which will be of aid to Americans intending to study pathology in the German-speaking countries, a questionnaire has been sent to the heads of institutes, as recorded in the membership list of the German Pathological Association. Some institutes may have been unintentionally omitted.

All these institutes accept qualified American physicians as voluntary assistants. In practically all the cases, a knowledge of the German language was volunteered as a primary requisite to admission to the institute. Many men emphasized that point especially, since the visitor must write his own protocols in German and take part in discussions with his colleagues and, when necessary, with the clinicians.

Most institutes have a minimum appointment time; a few did not specify. Some differentiate between those with previous training in pathology, and those without, the latter being accepted only for a longer period of time. While the visitor is expected to gain much from his opportunity, he is also expected to give something to the institute in the way of productive work. This can be accomplished only by an extended period of activity.

Fees vary with the institute. They include the departmental charge for stains and other materials, and are not personal fees. Animal experimentation and other undertakings involving expense can be arranged with the institute head. The visitor should not expect unreasonable outlay on the part of the institute.

The regular university lectures held in the institute are open to the visitor. In many institutes, special courses can be arranged on request. The visitors are permitted to perform autopsies, except in a few institutes, if they are qualified. If not, they must first pass through the apprentice stage until, in the opinion of the chief, they are ready to take over that responsibility.

At the end of the period of work, the visitor can receive a letter from the chief, which testifies to the duration and character of his work.

The bulk of the information obtained from the questionnaire is shown in tabular form. The few institutes which did not permit the information given to be publicly used, or did not reply, are denoted by name only. Many of the places mentioned are known to me through association in work, or by extended visits. I will be glad to give further information about such places to qualified persons.

A word of gratitude must be offered to the heads of the institutes who graciously and kindly answered the many questions contained in the circular letter. Through their cooperation this report has been made possible. Should this information result in an increased use of the splendid opportunities for work in pathology in German-speaking Europe, I will feel that I have in a measure repaid my debt.

240 Longwood Avenue.

Book Notices

THE LIFE OF HERMANN M. BIGGS, M.D., D.Sc., LL.D., PHYSICIAN AND STATESMAN OF THE PUBLIC HEALTH. By C.-E. A. Winslow, Dr.P.H., Professor of Public Health, Yale School of Medicine. Cloth. Price, $5 net. Pp. 432, with illustrations. Philadelphia: Lea & Febiger, 1929.

Hermann M. Biggs was recognized at the time of his death as one of the greatest leaders that the world has known in the field of preventive medicine. His name is inscribed with those of twenty other sanitarians, physicians and men of science on the new building of the London School of Hygiene and Tropical Medicine as one of those who have done most to advance public health and the prevention of disease. Dr. Biggs was a pathologist by training, a sanitarian by practice. His life and career paralleled the half century in which preventive medicine made its greatest accomplishments. In his account of that life, Professor Winslow, himself a recognized leader, has been careful to show how the advances were made and the part Dr. Biggs played in those advances. Particularly important were, of course, the contributions to the field of tuberculosis, and this is fully reflected in a special chapter in this work. The book is personal, largely supplemented with excellent illustrations, and full of important correspondence.

DAS EXSICCOSEPROBLEM. Von Professor Dr. Erwin Schiff. Paper. Price, 6.80 marks. Pp. 85, with 11 illustrations. Berlin: Julius Springer, 1929.

This concise monograph is an experimental study of exsiccosis, which is referred to in the American literature as anhydremia (dehydration). The latter terms, according to Schiff, do not exactly indicate the process which he believes takes place. Consequently he instituted a series of experiments in which he attempted to produce exsiccosis and to present a more precise understanding of the underlying biochemical processes. The author gives credit to his teacher Czerny for first calling attention to the physiology and pathology of water metabolism of the growing infant. Schiff limited the water intake to one half or less of the normally required amount. The remainder of the diet was quantitatively and qualitatively unaltered. The food administered was principally cow's milk, and he employed a powdered dry milk because he felt that in this way he could obtain standard solutions. In the infant, Schiff noticed that, when exsiccosis occurred, restlessness, apathy and somnolence became marked. In addition, the babies lost in weight, their tissue turgor was diminished, the fontanel was depressed, the eyeballs were sunken, and the mucosa of the mouth was dry. In some of the patients the heart diminished in size, and this observation was confirmed by the fluoroscope. Not a few of these infants showed an elevation of temperature. The author thinks that certain types of children, such as the neuropathic and the exudative group, were particularly susceptible to the withdrawal of water. Young and delicate infants showed unfavorable symptoms when the water supply was diminished. Similar manifestations were elicited in experimental exsiccosis of young dogs. However, if an albumin-free diet was given to these experimental animals, none of the already mentioned clinical symptoms appeared. Schiff considered that the degree of blood concentration should represent the amount of exsiccosis, because there is a parallelism between the water content of the blood and the tissues. He conducted refractometric blood studies on normal infants and found that the albumin content averaged about 6 per cent. Similarly he made refractometric estimations in anhydremic infants and found that the albumin content of the blood was increased to 7 or 8 per cent. When the water intake was limited in the presence of a protein-containing diet there was a diminution of the water in the tissues. In the presence of a protein-free diet, however, the water content of the tissues was found to be normal. The author concludes from his observations that the important thing is not the water diminution but the disturbance in the intermediary protein metabolism induced by the water impoverishment, since a definite quantity of water is indispensable for the normal course of intermediary protein metabolism.

In studying the metabolism in experimental exsiccosis, Schiff finds that there is an increased excretion of nitrogen, indicating an increase in protein catabolism in the absence of adequate water supply. In the course of these studies it was further found that there was a disturbed carbohydrate metabolism as indicated by the acidosis, and hyperglycemia. The alkali reserve was found to be lowered, and the chlorides of the blood serum increased. Credit is given to Erich Müller for first recognizing thirst fever in the infant. Half of the author's patients showed an increase in temperature. The author found that certain substances, such as diuretics, hypertonic salt, aloin and other substances which were capable of producing anhydremia, also caused fever. Schiff showed in his experimental studies on exsiccosis in mice that when they were deprived of fluid and then infected with streptococci or staphylococci no evidence of infection took place; the animals died after several days without showing any abscess formation or any cellular reaction on microscopic examination, though the organisms were recovered from the heart's blood. In the same experiments conducted on control animals that had not been deprived of water, abscesses occurred in the kidneys and a general bacteremia could be demonstrated. These observations indicate the influence of infection in anhydremic individuals. Notwithstanding negative anatomic and histologic results, the patient may become more toxic and death may ensue. In other words, in exsiccosis an infection may cause a fatal termination without showing the least cellular reaction.

In discussing the relationship of toxicosis to experimental exsiccosis, the author ascribes the cause of the former to a disturbance in the intermediary protein metabolism and localizes the disturbance in the liver. He incidentally notes the resemblance between peptone shock and exsiccosis and emphasizes the fact that in the former condition there is an uncompensated acidosis and the acid-base equilibrium presents the same peculiarities as in toxicosis and experimental exsiccosis. In discussing treatment, he indicates the importance of a protein-free diet rich in water. His favorite procedure is the use of Ringer's solution or dilute whey with the addition of 15 per cent sugar. Blood transfusion also may be of value. In short, Schiff presents an illuminating consideration of experimental exsiccosis with carefully gathered data and numerous tables and diagrams, which should be of interest to practitioners and pediatricians who are desirous of obtaining more fundamental understanding of clinical as well as biochemical processes in the toxicosis of anhydremia.

GLEANINGS FROM GENERAL PRACTICE. By David Tindal, M.D., F.R.F.P.S. Cloth. Price, $2.50. Pp. 209, with 3 illustrations. New York: William Wood & Company, 1929.

Every general practitioner is a research worker to the extent that he is able to observe life and to gather knowledge from his observation. Many general practitioners store up such knowledge without making it usefully available. The author of this book is a Scottish practitioner who has a good motive but whose qualifications scientifically are hardly up to his motive. His book contains some suggestions of value and some observations of interest thrown together rather haphazardly and supplemented by some fifty pages of "useful prescriptions," which may be useful but which are far from scientific in most instances. Most of them are repetitions of the compounds which formed considerable portions of practitioners' handbooks issued by proprietary manufacturers in this country a generation ago.

PRESCRIBING OCCUPATIONAL THERAPY. By William Rush Dunton, Jr., B.S., A.M., M.D. Cloth. Price, $2.10. Pp. 142, Springfield, Illinois: Charles C. Thomas, 1928.

Few physicians have any real conception of occupational therapy. It is quite the custom to show admiring visitors through the hospital and to exhibit samples of the baskets, the knitting, the carpentry and other occupational efforts, but in most instances the selection of the type of effort and all the details have been left to the social workers and the nurses. Dr. Dunton explains the basis of occupational therapy, analyzes the various constitutions of patients which underly the prescription, and ventures a few notes on the subject of fatigue. In a second portion of his book he discusses occupational therapy as applied in mental disorders, surgical and general medical disorders, and orthopedic disturbances. The book is brief and will serve to orient the physician exactly in this field.

THE NEW PSYCHOLOGY OF THE UNCONSCIOUS. By C. W. Valentine, M.A., D.Phil., Professor of Education in the University of Birmingham. Rev. ed. (Former title: Dreams and the Unconscious.) Cloth. Price, $1.60. Pp. 162. New York: Macmillan Company, 1929.

This volume was first published in 1921 as an attempt to coordinate the freudian conceptions with modern scientific physiology and psychology. The author is convinced that the care of the psychiatric patient is properly a matter for the physician and not for the amateur, and that it will be valuable for the physician to have the aid of the psychologic investigator when he himself is not fully informed in psychologic methods. The author elucidates the freudian ideas briefly but does not accept them fully. He recognizes that a study of the unconscious is a new field and that it is far too soon to be dogmatic in considering it.

INTERNATIONALER ÄRZTLICHER FORTBILDUNGSKURSUS MIT BESONDERER BERÜCKSICHTIGUNG DER BALNEOLOGIE UND BALNEOTHERAPIE, 1928. Karlsbader ärztliche Vorträge. Band X. Herausgegeben vom Stadrat Karlsbad in dessen Auftrage redigiert von Dr. Edgar Ganz. Cloth. Pp. 463, with 87 illustrations. Jena: Gustav Fischer, 1929.

For the last ten years, it has been the custom to hold annually, at Karlsbad, a "fortbildungskurs" for physicians. The present volume contains a collection of the clinical lectures in German by prominent European medical teachers delivered at the tenth meeting of this kind. It includes a variety of subjects of interest to the general practitioner.

PRACTICAL SEROLOGY. By Luigi Viganò, Professor in the Royal University of Milan. Translated by E. Mary Heffer, Scholar of Girton College, Cambridge. Edited by C. G. L. Wolf, Addenbrooke's Hospital, Cambridge. Cloth. Price, 12s. 6d. net. Pp. 221, with illustrations. Cambridge: W. Heffer & Sons, Ltd., 1928.

This book reflects the serologic technic employed in the Serotherapeutic Institute in Milan. It is essentially a collection of well established tests, nicely illustrated and succinctly stated. It is a practical laboratory guide.

THE CONQUEST OF CANCER BY RADIUM AND OTHER METHODS. By Daniel Thomas Quigley, M.D., F.A.C.S., Instructor in Surgery in the University of Nebraska College of Medicine. Cloth. Price, $6. Pp. 539, with 334 illustrations. Philadelphia: F. A. Davis Company, 1929.

In reading this book one is strongly impressed by the optimism with which the author views malignant conditions, especially those which are readily accessible. This work presents an analysis of the various conditions in which radium may be used. The author emphasizes the influence of low grade infection and acidity, associated with chronic irritation, as causative factors in the development of cancer. He also presents the idea that proper diet, correct habits and hygienic surroundings may have much to do in eliminating cancer. One seeks in vain, however, for details and information explaining the author's methods of treatment in bringing about such results as reported in this book. This important phase of the work seems sadly neglected or overlooked.

METHODS AND PROBLEMS OF MEDICAL EDUCATION. (Thirteenth Series). Paper. Gratis. Pp. 130, with illustrations. New York: Rockefeller Foundation, 1929.

This publication is a description of Vanderbilt University School of Medicine, Nashville, Tenn. There are sixteen articles in all. The first report deals with the history and general description of the school of medicine. A separate report is devoted to each of the departments, including the library and the school of nursing connected with the school of medicine. These articles are fully illustrated with interiors and floor plans of the school as a whole as well as of each department. From this series one can obtain an excellent idea of the modern medical school.

MOTHERHOOD IN BONDAGE. By Margaret Sanger. Cloth. Price, $3. Pp. 446, with 1 illustration. New York: Brentano's 1928.

In her introduction to this book, Mrs. Sanger points out that thousands of letters are sent to her each year by mothers who want help in birth control, and that these letters are to her the best argument for a better dissemination of knowledge of this subject. The book is, therefore, plainly propaganda. The various letters point questions and are collected under chapter headings. Certainly the book is a cross-section of one phase of our civilization, and as such merits consideration.

LA TUBERCOLOSI: scienza e legge nella lotta contro la tubercolosi a traverso i tempi e nei diversi Paesi. Volume I-IV. Per A. Messea, G. Bilancioni, B. Gosio, M. Pergola, R. Maggiora Vergano, B. Rosa, N. Sforza, A. Di Vestea, A. Niceforo, G. Druetti, A. Pavone e C. Tommasi Crudeli. Pubblicato per la VI Conferenza dell'Unione Internazionale contro la Tuberculosi. Paper. Pp. 720; 522; 643; 1170. Rome: Provveditorato Generale Dello Stato Libreria, 1928.

This work is divided into nine parts in four volumes and was published on the occasion of the fourth conference of the International Union for the Prevention of Tuberculosis. It is a chronological exposition of the struggle against tuberculosis in different countries from the earliest epochs to the present time. The first volume contains two parts. In part 1, Professor Bilancioni shows the historical unfolding of knowledge regarding tuberculosis from the earliest studies. Part 2, also by Professor Bilancioni, is a study of laryngeal tuberculosis in which the importance of this complication in pulmonary tuberculosis is stressed. It explains the pathogenesis of the pulmonary form, the methods of its development and the numerous problems connected with the prophylaxis and spread of this form of the disease. The second volume consists of part 3 of the work and concerns the bacteriology and immunology of tuberculosis. These subjects are treated at length by Profs. Bartolomeo Vosio, Maggiora-Vergano, Mazzini-Pergola and Bernardo Rossi. The third volume is devoted to the study of social antituberculosis provisions and includes parts 4, 5, 6 and 7. Part 4, by Prof. N. Sforza, looks into the therapeutic efforts in different times and countries. Part 5, by Professor De Vestea, treats of the hospitalization of the tuberculous patient; part 6, by Professor Niceforo, is a statistical report of death caused by tuberculosis, while part 7, by Dr. Druetti, describes the action of congresses, conferences, associations and propaganda for the battle against tuberculosis from the second half of the nineteenth century to the present day. The fourth volume comprises parts 8 and 9. In part 8, Dr. A. Pavoni has gathered in one accurate chronological study all legislation which has specifically aimed to eradicate tuberculosis, emanating from 160 countries and states. In part 9, Dr. Corrado Tommasi takes up in particular the social provisions in Italy, justly placing in relief those laws passed by the Fascist government in its "Carta del Lavoro," in which is found an elaborate program of hygienic enterprises for the betterment of living conditions and educational facilities in the effort to fight tuberculosis properly and with the best results. While this work is voluminous and complex, it is altogether an orderly exposition of the tuberculosis problem and an exhaustive examination of both its scientific and its social aspect. The part regarding legislation on the subject is particularly illuminating.

MENTAL DEFICIENCY (AMENTIA). By A. F. Tredgold, M.D., F.R.C.P., F.R.S., Lecturer on Mental Deficiency, London University. Fifth edition. Cloth. Price, $7.50. Pp. 535, with illustrations. New York: William Wood & Company, 1929.

This volume, now in its fifth edition, largely rewritten, is one of the most popular guides for practitioners who are interested in the field of mental disturbances. The author has apparently kept abreast of recent investigations in this field, and he couples his knowledge with a tremendous experience and with extraordinary ability in expressing himself. His discussions are elaborated by good case reports, and his consideration of mental tests, of methods of procedure and of allied topics is reliable. The book should interest every physician who is at all interested in the field of mental disturbances.

THE BASIC PRINCIPLES OF GENERAL AND ORAL PATHOLOGY: A Text-Book for the Dental Hygienist and the Medical Nurse; and a Supplementary Text for the Dental Student and the Graduate Dentist. By Lester Richard Cahn, D.D.S., Department of Oral Pathology, College of Dental and Oral Surgery, Columbia University. Cloth. Price, $4.50. Pp. 152, with 89 illustrations. Brooklyn: Dental Items of Interest Publishing Company, Inc., 1929.

As is suggested by the title and the size, this is but little more than a quiz compend to which have been added a number of illustrations, all of which concern mouth lesions. The illustrations of gross subjects are satisfactory, but the reproductions of photomicrographs, in many instances, leave much to be desired. The first seven chapters, a little more than half the book, have to do with general pathology, including tumors and cysts; chapters VIII to XI cover oral pathology, and the last chapter deals with the mouth lesions of general diseases. The

arrangement is excellent; essential matters have not been omitted and the descriptive matter, for the most part, is clear and concise. However, on page 84 the use of the word "or" instead of "and" between the words, "multilocular cyst" and "adamantinoma" has entirely changed the meaning; and on page 144 the arrangement of the matter under the heading of the mouth lesions of rickets is faulty. This should be a useful textbook for short courses and reviews.

A SHORT HISTORY OF MEDICINE INTRODUCING MEDICAL PRINCIPLES TO STUDENTS AND NON-MEDICAL READERS. By Charles Singer, M.A., M.D., D.Litt., Lecturer on the History of Medicine in the University of London. Cloth. Price, $3. Pp. 368, with 142 illustrations. New York: Oxford University Press, 1928.

Dr. Singer is the most eminent of the British leaders in the history of medicine. His contributions to the subject, particularly of Greek thought and its influence on medicine, have been recognized throughout the world. In this book, which is provided for both a medical and a popular audience, he gives a brief survey of the origin of modern scientific medicine, particularly from the Greeks, but he does not neglect the contributions from other sources. He lightens his work by anecdote and example and by an extraordinary number of excellent illustrations. The book should serve particularly well as a textbook for short courses on medical history if a textbook is desirable. As a reference book it is not, of course, in the same class as the "History of Medicine," by Garrison. Dr. Singer's style is readable, and his diction admirable.

INTERNS HANDBOOK: A Guide to Rational Drug Therapy, Clinical Procedures and Diets. By Members of the Faculty of the College of Medicine Syracuse University. Under the Direction of M. S. Dooley, A.B., M.D., Chairman of Publication Committee. Cloth. Price, $3. Pp. 235. Philadelphia: J. B. Lippincott Company, 1929.

This handbook is divided into two parts. The first part contains a physicians' drug list which gives information needed in using standard drugs as well as a list of titles. An outline of the emergency treatment of drug poisoning concludes this part. The second part includes the standard clinical procedures, medical, surgical and special; dietaries; the technic of routine tests, and the technic of safeguarding laboratory specimens. Directions are so given as to prevent indecision in emergencies. A "pharmacy list" is appended. This handbook is described as a guide which will enable interns and clinical clerks to adapt themselves more easily to the hospital routine and acquire more quickly the ability to render effective service.

THE CHILD IN AMERICA: BEHAVIOR PROBLEMS AND PROGRAMS. By William I. Thomas and Dorothy Swaine Thomas. Cloth. Price, $5, text edition. Pp. 583, with 1 illustration. New York: Alfred A. Knopf, 1928.

This volume represents a collection of the studies carried on by Professor Thomas and his associates in various portions of the United States. Here are considerations of maladjustments to our modern civilization, and of programs of research in a field which is just beginning to open for the investigator. Here is a guide to the various clinics that are being established in the United States, and to the whole question of parent and teacher in relationship to child behavior. The work is not a simple guide for the average mother but a source book for the experienced worker in this field. For such people, the experience of a leader such as Professor Thomas is invaluable.

PRACTICAL MATERIA MEDICA. An Introductory Text to the Study of Pharmacology and Therapeutics Designed for Students of Medicine. By Clayton S. Smith, Ph.D., M.D., Professor of Physiological Chemistry and Pharmacology in the College of Medicine of the Ohio State University, and Helen L. Wikoff, Ph.D., Instructor in Physiological Chemistry and Pharmacology in the College of Medicine of the Ohio State University. Cloth. Price, $3.25 net. Pp. 300. Philadelphia: Lea & Febiger, 1929.

This is an attempt to teach materia medica from the chemical point of view. Were it not expressly stated that this is intended as an introductory text to the study of "pharmacology and therapeutics designed for students of medicine," one would suppose that it was intended for students of pharmacy. To have students of medicine prepare numerous chemical compounds and many pharmaceutic preparations and to assay them seems a waste of valuable time, the investment of which, in other directions, is so greatly needed.

Medicolegal

Negligence in Treatment; Qualifications of Expert

(Thaggard v. Vafes (Ala.), 119 So. 647)

The appellant, Thaggard, a practicing physician, undertook to treat one Hylton. Hylton died, and the administratrix of his estate, Janie Vafes, sued Thaggard, alleging that the death was due to his negligence. In the trial court judgment was given in her favor. The physician appealed to the supreme court of Alabama. There the judgment was affirmed.

The evidence showed without dispute that Thaggard administered to the deceased "hypodermatically, a quantity of neosalvarsan or 606, which contained arsenic, a deadly poison," without an examination of the patient's kidneys or urine. The dose was administered on Thursday, and on the Sunday following the patient developed symptoms of inflammation of the brain and arsenic poisoning and died. There was evidence to show that Thaggard was informed at 10 a. m. that his patient was desperately ill, that other physicians who were called later refused to treat the patient in Thaggard's absence, and that Thaggard, although repeatedly called, did not attend his patient until about 7 p. m., a short time before his death, and then only after the patient's sister sent a car for him. "While the authorities are agreed," said the supreme court, "that a mere breach of contract is not a wrongful or negligent act, within the meaning of the statutes giving a right of action for wrongfully causing death, yet they are also agreed that the negligent or tortious breach of a duty to the person whose death is caused thereby is within the statute, though such duty arises out of contract." The relation of physician and patient may be established by contract or merely by the acquiescence of the parties, but the physician who assumes to act in that relation is obligated to exercise that reasonable and ordinary care, skill and diligence exercised generally by members of his profession in the same neighborhood. The averments of the plaintiff showed that Thaggard was under a duty to exercise that degree of care and diligence and that he failed to do so, with resulting injury. A demurrer on behalf of Thaggard was therefore properly overruled.

A physician, who resided in the neighborhood and was conceded to be a qualified expert witness, testified in effect that such treatment as Thaggard administered was ill advised and dangerous if the patient had any symptoms showing that he was suffering from inflammation of the brain, and that if there were such symptoms they were readily discernible by an examination of the patient's heart, lungs, kidneys, pulse and general condition. There was testimony to show that the symptoms that preceded the patient's death were such as would follow the administration of neoarsphenamine if the patient was not in such a condition as to react to the drug or if the drug was administered in too great quantity. There seems to have been evidence to show that the patient had previously been examined by a physician prior to the administration of the neoarsphenamine and found in suitable condition for that treatment and that Thaggard had knowledge of that examination, but the published report of the case does not show what that evidence was. The court discussed this aspect of the case, however, as follows:

> We are clear to the conclusion that it cannot be declared, as a matter of law, that a physician may rely upon the diagnosis of another, no matter how skilled, in administering drugs, in the treatment of diseases, that contain a deadly poison. The patient was entitled to have the benefit, judgment and skill of the physician he had selected, formed from his own diagnosis.

The trial court, therefore, properly refused charges to the jury that if satisfied from the evidence that Dr. Donald, a reputable and successful physician, after examination, advised Thaggard to administer antisyphilitic treatment, Thaggard had a right to rely on the examination made by Dr. Donald. The requested charges were well refused for another reason, too, said the court, because they ignored the evidence tending to show that the patient treated by Thaggard was not the person examined by Dr. Donald.

A witness, Vafes, a dentist, was asked concerning the deceased, "Do you know what killed him?" and a motion to exclude his answer was overruled. This, the supreme court said, was without error. The witness testified that he was a practicing dentist, a graduate of a dental college, and in the study of his profession

had had substantially the same course in chemistry and the effect of drugs on the human system as the course given to physicians, and that as a result of his study and practice he knew the effect of arsenic on the human body. This, said the supreme court, qualified him to testify as an expert, leaving the weight of his testimony to the jury. And though his answer to the question, "Do you know what killed him?" came in form as a statement of fact, the cross examination showed clearly that it was nothing more than the opinion of the witness, which he was qualified to express.

Delayed Recovery Not "Unusual"

(Bourgardes' Case (Mass.), 163 N. E. 710)

Bourgardes suffered from a "sprained foot" in the course of his employment, Jan. 14, 1926. One would ordinarily recover from such a sprain within six or eight weeks, but Bourgardes was not able to work for several months subsequent to Sept. 19, 1926. The question arose, under the workmen's compensation act, whether the case was an "unusual" one, in which discretion might be exercised to charge the insurer with the payment of the physician's bill after the lapse of two weeks allowed by the act. The industrial accident board held that it was, but this was denied by the superior court. On appeal to the supreme judicial court of Massachusetts the court found that there was nothing unusual within the meaning of the act. Cases may be unusual in the sense that they do not occur under ordinary circumstances or that recovery is prolonged, but such facts do not make them "unusual" within the meaning of the statute.

Liability of Hospital for Malpractice by Officer

(Johnson v. City Hospital Company (N. C.), 146 S. E. 573)

The plaintiff sued the defendant hospital company, a private corporation operated for gain, alleging negligent treatment of a fracture of his arm. A verdict in his favor was given in the county court. Certain exceptions to this verdict were heard by the superior court, some of which were overruled and some sustained, and a new trial was awarded. Both parties thereupon appealed to the supreme court of North Carolina, where the verdict in favor of the plaintiff was reversed.

Dr. G. was president and Dr. S. secretary of the hospital, owning approximately 55 per cent of the capital stock. They performed the duties of president and secretary in a clerical capacity only, and with the consent of the directors of the hospital they maintained private offices in the building. They had exclusive right to treat all surgical cases coming to the hospital, except those involving the ear, eye, nose and throat. All fees for such cases were paid to them and constituted no part of the revenues of the hospital. The plaintiff applied to Dr. S., in his office in the hospital building, for treatment for a fractured arm. After taking a roentgenogram, Dr. S. put a plaster cast on the arm and directed the plaintiff to return for further treatment. Dr. S. maintained another office outside the hospital building, and there the plaintiff consulted him on two or three occasions. Subsequently, Dr. S. took the patient back to the hospital and had Dr. G. make another roentgenogram of the arm. The question before the court was whether Dr. S., in treating the plaintiff, was acting as a servant or agent of the hospital and within the course and scope of his employment. Clearly, the court said, the hospital would not be liable for the negligent acts of its officers merely because they were officers. The evidence disclosed that the plaintiff was never entered as a patient in the hospital records and that the hospital never charged or received any sum whatever from the plaintiff for treatment. The roentgen-ray machine used was owned by Dr. G. and was set up in his private office in the hospital. The hospital had no control over that machine or over the private office where it was situated. Dr. S. was not employed by the hospital to treat patients and received no compensation from the hospital, except that he was not required to pay office rent. The evidence, the court said, plainly established that the plaintiff was a private patient of Dr. S., who in treating him exercised an independent and individual professional judgment and skill. The court then quoted, with approval, from the case of *Black* v. *Fischer*, 30 Ga. App. 109, 117 S. E. 103, decided by the court of appeals of Georgia:

> The fact that the surgeon was one of the principal stockholders in the defendant corporation would not render the corporation liable for unskilful and improper treatment of his patient; nor does the fact that the defendant company was largely under the control and management of the surgeon render the corporation liable for unskilful treatment rendered by the surgeon to one of his patients. . . . The allegation that ——— was the agent and surgeon of the sanatorium company does not render the defendant company liable, without the further and necessary allegation, and the facts to sustain it, showing that the act of the agent was by the command or direction of [the sanatorium company] or within the scope of the agent's employment.

Applying the foregoing principles of law to the facts disclosed in the present case, the court was of the opinion that the judgment in favor of the plaintiff should be reversed.

Privileged Communication Not Waived by Insurance Contract; When Disability Begins.—A provision in an insurance contract requiring the insured to furnish the insurer a report in writing from the attending physician, stating the condition of the insured and the probable duration of his disability, does not constitute a waiver of the statutory privilege accorded communications between a patient and his physician. A charge to the jury, that in an accident and disability insurance policy the phrase "the beginning of the disability" means the time when the disease first becomes manifest or active, and not the time when the medical cause of the disease may have originated or begun, correctly states the law.—*Provident Life and Accident Insurance Company v. Jemison (Miss.), 120 So. 180; rehearing, 120 So. 836.*

Liability of Charitable Hospital for Negligence.—A patient who claims to have been burned through the negligence of a charitable hospital in the preparation and use of a vapor lamp, prescribed for inhalation purposes, cannot maintain an action against the hospital where the testimony discloses a charitable trust and that a judgment rendered against that trust, if satisfied, would deplete the trust fund.—*Brown v. St. Luke's Hospital Association (Colo.), 274 P. 740.*

Physician's Certificate as to Mental Condition Incompetent in Will Contest.—Two physicians, after examination, certified that Olson was then "mentally fit and capable to direct the disposition of his affairs." This certificate was attached to his will, executed coincidentally. The probate of this will was contested in the district court, Fillmore County, for want of testamentary capacity. From an order denying probate, the proponent appealed to the supreme court of Minnesota, urging, among other things, that the trial court erred in excluding this certificate from evidence. The supreme court, however, held that such a certificate was hearsay, beyond the test of cross-examination, and therefore incompetent, and that it was properly excluded.—*In Re Olson's Estate (Minn.), 223 N. W. 677.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Atlantic City, N. J., October 21-25. Dr. William P. Wherry, Medical Arts Building, Omaha, Executive Secretary.

American Academy of Physical Therapy, Philadelphia, December 5-6. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pa., Sec'y.

American Association of Railway Surgeons, Chicago, November 6-8. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Physical Therapy, Chicago, November 4-7. Dr. F. L. Wahrer, 22 South Center Street, Marshalltown, Iowa, Secretary.

American Society of Tropical Medicine, Miami, Fla., November 20-22. Dr. Edwin Peterson, U. S. Naval Hospital, Washington, D. C., Sec'y.

Associated Anesthetists of the United States and Canada, Chicago, October 14-18. Dr. F. H. McMechan, 770 West Lake Road, Avon Lake, Ohio, Secretary.

Association of American Medical Colleges, New York, Nov. 7-9. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Interstate Postgraduate Medical Association of North America, Detroit, October 21-25. Dr. Edwin Henes, Jr., 445 Milwaukee Street, Milwaukee, Executive Secretary.

Kentucky State Medical Association, Louisville, October 21-24. Dr. A. T. McCormack, 532 West Main Street, Louisville, Secretary.

Medical and Surgical Association of the Southwest, Phoenix, Ariz., November 7-9. Dr. W. Warner Watkins, P. O. Box 1587, Phoenix, Secretary.

Radiological Society of North America, Toronto, December 2-6. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Acting Secretary.

Southern Medical Association, Miami, Fla., November 20-22. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Virginia, Medical Society of, Charlottesville, October 22-24. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Medical Sciences, Philadelphia

178: 309-448 (Sept.) 1929

Fatal Infection of Intestines with Bacillus Aerogenes-Capsulatus. J. Sailer, G. M. Laws and J. Eiman, Philadelphia.—p. 309.
*Mongolian Idiocy: Manner of Inheritance. M. T. Macklin, London, Ont., Can.—p. 315.
Asthma Due to Mayfly. K. D. Figley, Toledo, Ohio.—p. 338.
Clinicophysiologic Study of Pathway of Pain Impulses in Cardiac Disease. G. I. Swetlow, New York.—p. 345.
Clinical and Roentgen Findings in Study of Heart and Great Vessels. G. J. Chandlee and E. Burvill-Holmes, Philadelphia.—p. 364.
*Effect of Amytal Anesthesia on Uterus and Use in Obstetrics. D. L. Drabkin, I. S. Ravdin, J. C. Hirst and M. E. Lapham, Philadelphia.—p. 379.
*Coronary Thrombosis: Three Recovered Cases. A. C. Ernstene, Boston.—p. 383.
Therapeutic Indications and Dangers of Intravenous Administration of Sodium-Phenyl-Ethyl Barbiturate (Sodium Luminal) and Other Barbituric Acid Derivatives. S. Weiss, Boston.—p. 390.
*Intratracheal Method for Prolonged Artificial Respiration. L. Brahdy and M. B. Brahdy, New York.—p. 405.

Manner of Inheritance of Mongolian Idiocy.—From a survey of the literature dealing with mongolian idiocy, Macklin concludes that no adequate support for the contentions that syphilis, mental or physical suffering of the mother during pregnancy, advanced age of the mother at the time of conception, or reproductive exhaustion due to a large number of pregnancies or to the father's being younger or much older than the mother have any etiologic significance in the production of this disease. Evidence is presented that these and all other environmental influences that may be mentioned are not the cause of mongolian idiocy, but that it is due to inherited defects and so is germinal in origin. There is no support for the statement that it is due to the presence of one pair of unit recessive factors. Its mode of inheritance appears to be much more complex, and figures are given showing the similarity between theoretical and actual results when the theoretical are based on the assumption that the disease is due to the simultaneous presence in the germ cell of five pairs of recessive factors or two dominant and four pairs of recessive factors, carried in as many different chromosomes. It is not suggested that such agreement constitutes proof that this is the mode of inheritance of mongolian idiocy.

Effect of Amytal Anesthesia on Uterus and Use in Obstetrics.—Drabkin et al. assert that iso-amyl-ethyl barbituric acid (amytal) has no effect on the rhythmic contractions of the virgin guinea-pig's uterus either in vitro or in vivo. Furthermore, the uterus of animals anesthetized with this drug responded to the oxytoxic principle of the pituitary. The drug has been found to produce effective anesthesia in a large proportion of obstetric cases (30 Gm. per kilogram by rectum). In all of them its administration resulted in a condition of amnesia, so that, after delivery and recovery from the drug, the patient had no recollection of the period of labor. The babies at the time of delivery showed little, if any, effect of the drug.

Coronary Thrombosis.—Three cases of coronary thrombosis with recovery and six cases terminating fatally have been studied by Ernstene. The recovered patients have been under observation for from one to about four years after the attack, and all at present are enjoying satisfactory health.

Intratracheal Method for Prolonged Artificial Respiration.—The method proposed by the Brahdys makes use of an intratracheal catheter. It differs from the Meltzer method in that the lungs are expanded every four seconds by air under pressure, and then allowed to collapse and remain collapsed for three seconds. The alveolar air is changed, as in natural respiration, by movement of the lungs. During the stage of collapse the flow of air through the catheter continues but under very low pressure, not sufficient to expand the lungs. This produces an uninterrupted escape of air from the larynx. The method was used in two cases of poliomyelitis in which there was complete respiratory paralysis. The patients were cyanosed and pulseless and did not show signs of any muscle movement when artificial respiration was begun. Normal color and pulse returned and were maintained in one patient for nine hours and in the second patient for twelve and a half hours; at the end of that time the heart stopped.

American J. Ophthalmology, Chicago

12: 711-792 (Sept.) 1929

Photography of Living Eye: Reproduction in Natural Colors. L. D. Redway, New York.—p. 711.
Acquired Axial Myopia. F. A. Newman, Melbourne, Australia.—p. 714.
Retroplacement for Strabismus. C. Berens, R. R. Losey and P. T. Connolly, New York.—p. 720.
Important Phases of Satisfactory Senile Cataract Extraction. L. C. Peter, Philadelphia.—p. 727.
Plasmoma of Conjunctiva. W. M. James, St. Louis.—p. 731.
Cavernous Hemangioma of Orbit: Case. A. B. Bruner, Cleveland.—p. 737.
Loss of Peripheral Vision After Head Trauma. C. J. McCullough and W. J. L. McCullough, Washington, Pa.—p. 741.
Absence of Palpebral Fissure. P. McRitchie, Basrah, Iraq.—p. 744.
Congenital Fistula of Lacrimal Sac. J. Levine, New York.—p. 745.
Corneal Bulla Complicating Orbital Abscess. J. J. Horton, Eagle Pass, Texas.—p. 746.
Optic Neuritis in Malta Fever. D. E. Godwin, Long Beach, Calif.—p. 747.

American J. Public Health, New York

19: 961-1080 (Sept.) 1929

Maternity as Public Health Problem. M. Nicoll, Jr., Albany, N. Y.—p. 961.
Precision and Reliability of Underweight Measurement. C. E. Turner, Cambridge, Mass.—p. 969.
Antirabic Immunization with Desiccated Vaccine. D. L. Harris, St. Louis.—p. 980.
Antirabic Vaccination by Means of Desiccated Virus. R. D'Aunoy, New Orleans.—p. 986.
Iodized Salt. W. C. Geagley, Lansing, Mich.—p. 991.
Typhoid Fever in Rural Village of Porto Rico Due to Surface Well. E. G. Morales, San Juan, P. R.—p. 997.
Nativity and Disease Susceptibility. G. B. L. Arner, Harrisburg, Pa.—p. 1005.
Two Milk-Borne Septic Sore Throat Epidemics. P. B. Brooks, Albany, N. Y.—p. 1009.
Local Immunization and Antivirus. N. W. Larkum, Lansing, Mich.—p. 1018.

American Review Tuberculosis, Baltimore

20: 275-412 (Sept.) 1929

*New Analysis of Value and Safety of Protective Immunization with B C G (Bacillus Calmette-Guérin). S. A. Petroff, Trudeau, N. Y.—p. 275.
*Oral Vaccination with B C G on Human Beings in New York City. C. Kereszturi, New York.—p. 297.
*Evaluation of Leukocytic Reaction in Blood as Found in Cases of Tuberculosis. E. M. Medlar, Mount McGregor, N. Y.—p. 312.
*Leukocytic Picture of Blood as Aid in Prognosis and Treatment of Pulmonary Tuberculosis. J. W. Flinn and R. S. Flinn, Prescott, Ariz.—p. 347.
*Epidemiology of Tuberculosis, Past and Present. W. W. Lee, Indianapolis.—p. 368.

New Analysis of Value and Safety of Protective Immunization with B C G.—Believing in the evolution and mutation of all micro-organisms, Petroff is opposed to the adoption of any method of prophylactic immunization that uses a living micro-organism. Infants that become infected with a virulent micro-organism and develop a latent tuberculosis may manifest a clinical disease later in life. There is at present not an iota of scientific evidence to show that the same thing may not occur if infants are infected with B C G; there is accredited evidence to suggest that such a catastrophe might happen. The low level of acquired resistance obtained by the implantation of living micro-organism is all one can expect. Shall we, asks Petroff, pay the price for such a resistance by infecting the whole race? If we must use a vaccine, he believes that one composed of dead micro-organisms can accomplish as much as can be obtained with B C G.

Oral Vaccination with B C G on Human Beings in New York City.—Experience prompts Kereszturi to conclude that: Oral B C G vaccination is relatively simple. It is harm-

less. It gives some immunity. The degree and duration of immunity cannot be determined as yet.

Evaluation of Leukocytic Reaction in Blood in Cases of Tuberculosis.—Medlar asserts that there is no specific leukocytic reaction in the tuberculous. This makes the use of the leukocytic formula impossible as a diagnostic aid. The establishment of the clinical diagnosis of tuberculosis is necessary before the leukocytes can be of aid in the interpretation of the status of the tuberculous process. Each case must be interpreted on a basis as to how the patient is handling his tuberculosis. The leukocytic reaction often agrees closely with the clinical status of a tuberculous individual. The extent or location of the tuberculous process cannot be told by the leukocytic reaction. The leukocytes indicate only the status of a tuberculous process at the time the blood is obtained. It is essential that the total leukocyte count, together with the differential percentages (total cells of each leukocyte type), be used if the maximum information be obtained from the leukocytic reaction in a case of tuberculosis.

Leukocytic Picture of Blood as Aid in Prognosis and Treatment of Pulmonary Tuberculosis.—In uncomplicated cases of active pulmonary tuberculosis the Flinns state that the leukocytic picture may, with a large degree of accuracy, be interpreted as follows: 1. An increase in the monocyte-lymphocyte ratio—that is, a decrease in the monocytic percentage with a concurrent increase in the lymphocytic percentage—points definitely to an improved pulmonary condition. The converse points just as definitely in the opposite direction. 2. An increase in the lymphocyte-neutrophile ratio—that is, a decrease in the percentage of lymphocytes with a concurrent increase in the percentage of neutrophils—points definitely to more extensive pulmonary involvement. The converse points just as definitely in the opposite direction. It is self-evident that such conclusions are a distinct aid in the prognosis and treatment of pulmonary tuberculosis.

Epidemiology of Tuberculosis.—Lee asserts that if the present trend of tuberculosis mortality shall be maintained in the future, by 1970 the general tuberculosis death rate should be about ten per hundred thousand of population, or similar to that of diphtheria at the present time.

Archives of Dermatol. & Syphilology, Chicago

20: 277-430 (Sept.) 1929

Urticaria: IV. Wheal Formation on Abnormal Skins. A. Walzer, New York.—p. 277.
*Dermatitis Exfoliativa Due to Arsenic in Wall Paper. C. Halloran, Los Angeles.—p. 303.
Diplegia Facialis in Early Syphilis: Case. M. J. Strauss, New Haven, Conn.—p. 306.
Autoinoculation Dermatophytosis from Toe Cultures of Human Volunteers. C. White, Chicago.—p. 315.
Leukemia as Sequel in Skin Disease. D. E. H. Cleveland, Vancouver, British Columbia.—p. 320.
Vincent's Angina: Case. G. A. Williams, Atlanta, Ga.—p. 322.
Virulent Anthrax Bacillus from Case of Malignant Pustule in Man. A. E. Sheplar and M. B. Patterson, New York.—p. 323.
Eczema: IV. Correlation of Potassium-Calcium Ratio in Serum and in Skin of Rabbits with Irritability of Skin. J. V. Klauder and H. Brown, Philadelphia.—p. 326.
Eruption on Genitalia Due to Fungus (Monilia Pinoyi-Castellani). H. Odland and R. E. Hoffstadt, Seattle.—p. 335.
*Superficial Epitheliomatosis. H. Montgomery, Rochester, Minn.—p. 339.
Bacterial Etiology of Seborrhea. F. M. Duffy, Omaha.—p. 358.

Dermatitis Exfoliativa Due to Arsenic in Wall Paper.—A case of exfoliative dermatitis due to arsenic absorbed from wall paper is reported by Halloran. Though arsenic may be present in every tissue in the body in arsenic poisoning, perhaps the most valuable laboratory test in dermatitis exfoliativa due to the drug is a positive reaction for arsenic in scales scraped from the body of the patient. Arsenic in the urine is of little or no value as an aid in diagnosis, since it may be found in the urine of those suffering from many other skin diseases, as well as in many apparently normal persons.

Superficial Epitheliomatosis.—A case of intra-epidermal epithelioma (Borst and Jadassohn) is reported by Montgomery and reasons for its inclusion with superficial epitheliomatosis are given. It is not to be confused with Bowen's disease. There is no apparent relationship between either Bowen's disease or extramammary Paget's disease and superficial epitheliomatosis.

Archives of Neurol. & Psychiatry, Chicago

22: 425-646 (Sept.) 1929

Conditioned Reflexes. P. Schilder, Vienna, Austria.—p. 425.
Proliferation of Arachnoid Cell in and Around Dura Mater. T. W. Brockbank, Rochester, Minn.—p. 444.
Psychogalvanic Studies of Normal and Abnormal Subjects. E. M. Westburgh, Philadelphia.—p. 453.
Epidemic Encephalitis with Cerebellar Symptoms: Two Cases. A. Jenkins, Philadelphia.—p. 469.
Blastomycotic Meningo-Encephalitis: Case. I. Gáspár, Rochester, N. Y.—p. 475.
*Stuttering: V. Simultaneous Antitropic Movements of Hands of Stutterers. L. E. Travis and R. Y. Herren, Iowa City.—p. 487.
Quantitative Distribution of Pyramidal Tract in Man. A. Weil and A. Lassek, Chicago.—p. 495.
Origin of Oligodendroglia. A. Ferraro, New York.—p. 511.
Early Diagnosis of Mental Defect. A. Geseli, New Haven, Conn.—p. 522.
Occlusion of Posterior Inferior Cerebellar Artery: Four Cases. R. H. Thompson, Philadelphia.—p. 530.
*Primary Pituitary Tumors. C. B. Puestow, Rochester, Minn.—p. 547.
Mental and Neurologic Changes in Pernicious Anemia. L. H. Smith, Philadelphia.—p. 551.
Chronaxia: I. Methodology and Normal Variations; Thirty Cases in Children. D. Wechsler and R. G. Freeman, Jr., New York.—p. 558.
Relation of Cervical Sympathetic Trunk to Cerebral Angiospasm. R. H. Meagher and F. D. Ingraham, Boston.—p. 570.
Encephalography: Development of Hemiplegia Following Use: Case. C. Rosenheck, New York.—p. 575.
Apparatus for Pneumorachiocentesis. A. Berk and P. E. Tivnan, Boston.—p. 582.
Lilliputian Hallucinations: Case of Hyoscine Poisoning. A. R. Vonderahe, Cincinnati.—p. 585.

Simultaneous Antitrophic Movements of Hands of Stutterers.—In a study of simultaneous antitropic movements of the two hands (abduction and adduction), Travis and Herren found the following to be true of the groups studied: Right-handed normal speakers with a history of right-handedness lead more frequently with the left hand; right-handed normal speakers with a history of left-handedness lead about as often with one hand as with the other; left-handed normal speakers with a history of left-handedness lead more frequently with the right hand, and right-handed stutterers, regardless of a positive or a negative history of left-handedness, lead more frequently with the right hand. No significant differences seemed to be found between the groups, relative to simultaneous leads. In a supplementary study of eyedness, they found a significantly greater number of amphiocular persons among the right-handed stutterers than among any other group, with the possible exception of the right-handed normal speakers with a history of left-handedness. There were fewer right-eyed subjects among the right-handed stutterers than among the right-handed normal subjects with a history of right-handedness.

Primary Pituitary Tumors.—In a series of fifty primary tumors of the pituitary body analyzed by Puestow, more than 60 per cent were adenomas. Malignant lesions were found in 16 per cent of cases. Growth stimulation, manifested chiefly by acromegaly, was not found in cases other than in those of adenoma. Amenorrhea was present in thirteen of fourteen cases of adenoma and in only two of six cases of malignant lesions.

Canadian Public Health Journal, Toronto

20: 427-478 (Sept.) 1929.

Lessons from Poliomyelitis Epidemic in Manitoba, 1928. J. M. McEachern and L. G. Bell, Winnipeg.—p. 427.
Some Problems of Rural Medical Officer of Health. G. Lacasse, Tecumseh.—p. 431.
Home Adjustment of Problem Child. J. Kilburn, Toronto.—p. 437.
County as Unit of Public Health Nursing. R. E. Hamilton.—p. 442.
Modern Trends in Physical Education. J. S. Herriott, Montreal.—p. 448.

Colorado Medicine, Denver

26: 301-326 (Sept.) 1929

Simulation of Visceral Disease by Peripheral Nerve Pain and Tenderness. J. C. Cottrell, Salida.—p. 303.
Ours Is the Power. H. Sewall, Denver.—p. 307.
Consideration of Some Points in Hirschsprung's Disease. C. F. Hegner, Denver.—p. 309.
Heliotherapy in Pediatrics. R. P. Forbes, Denver.—p. 313.
Question of Abdominal Drainage. L. E. Likes, Lamar.—p. 318.
*Undulant Fever: Case. J. D. Carey and I. E. Newsom, Fort Collins.—p. 320.

Undulant Fever.—The case reported by Carey and Newsom, the first reported from Colorado, was probably due to the *Bacillus abortus* of cattle and was probably contracted by

drinking milk. While the organism was not isolated, it is believed that the negative tests for typhoid and paratyphoid and the positive tests with *Brucella abortus* antigen are sufficient to consider the case one of undulant fever.

Johns Hopkins Hospital Bull., Baltimore

45: 133-202 (Sept.) 1929

Malta Fever in United States. C. W. Wainwright, Baltimore.—p. 133.
Operations on Thyroid Gland. T. A. McGraw, Detroit.—p. 172.
*Chronic Nephritis Following Eclampsia. C. H. Peckham, Baltimore.—p. 176.

Chronic Nephritis Following Eclampsia.—In a series of seventy-seven cases reported on by Peckham, a relatively large percentage, 22.1, were found at the end of a year following an eclamptic attack to present a definite chronic nephritis. He says that much more nephritis follows severe than mild eclampsia, and it is more likely to develop after the antepartum type. The latter is particularly true when the eclampsia develops at some time before the pregnancy has reached term. The percentage incidence of nephritis increases with the age of the patient, and multiparous women are more prone to it than primiparous. Out of five cases of repeated eclampsia, nephritis developed in three after the second attack. None of these patients gave a history indicative of chronic kidney disease prior to the convulsive attack. There appears to be no connection between the number of convulsions and subsequent nephritis. However, it develops relatively less frequently when the duration of the convulsive attack is under six hours. There seems to be a direct relation between the amount of hypertension and albuminuria and later permanently impaired kidneys. With a pressure of 200 or more and albuminuria of at least 10 Gm., three fourths of the patients ultimately develop nephritis. Chemical examination of the blood at the time of eclampsia gives no indication of what may develop later. Neither the duration from onset of eclampsia to delivery, the length or type of labor, nor the type of anesthetic employed at delivery can be correlated with a later nephritis. A slow return of blood pressure to normal is suggestive. However, nephritis may develop within the year, even in patients who are discharged with a normal pressure and normal urine. On the other hand, hypertension and albuminuria persisting throughout the puerperium do not necessarily indicate that the kidneys will sustain permanent harm. The outlook for a subsequent pregnancy following eclampsia is less favorable than is generally believed. Even the most adequate prenatal care will not always prevent eclampsia. Consequently, all toxemias should be carefully watched since even the mildest types may occasionally eventuate in an altogether unexpected eclamptic attack.

Journal of Industrial Hygiene, Baltimore

11: 217-256 (Sept.) 1929

Tuberculosis League, Sanatorium and Industry. B. S. Coleman.—p. 217.
Silicosis with Low Incidence of Tuberculosis. E. F. Hayhurst, D. J. Kindel and B. E. Neiswander, Columbus, Ohio, and C. D. Barrett, Oberlin, Ohio.—p. 228.
Experimental Pneumonokoniosis: IV. Separation of Particulate Matter Smaller Than Screen Sizes into Graded Fractions. D. E. Cummings, Trudeau, N. Y.—p. 245.

Journal of Nerv. & Ment. Disease, New York

70: 241-352 (Sept.) 1929

Japanese Illusion and Postural Model of Body. E. Klein, Baltimore, and P. Schilder, Vienna.—p. 241.
*Basal Metabolism and Gastro-Intestinal Findings in Epileptic Patients. T. K. Davis, New York.—p. 264.
Optic Fundus Changes in Epidemic Encephalitis. S. Rothenberg, New York.—p. 271.
Metastatic Carcinoma (from Mammary Gland) of Pituitary Gland: Case. G. Johnson, Battle Creek, Mich.—p. 285.

Basal Metabolism and Gastro-Intestinal Conditions in Epileptic Patients.—In forty cases of epilepsy, Davis found duodenal stasis or some other duodenal abnormality in approximately 29 per cent of the cases. The roentgen examinations of the sella turcica were uniformly within the normal limits. If physiologic disturbance of the pituitary gland existed in these patients, it did not appear to be accompanied by gross anatomic changes sufficient to alter the sella. There is a distinct tendency for patients subject to epileptic seizures to have a lower basal metabolism than normal, and Davis feels that this tendency would seem to warrant the use of pituitary therapy.

Journal of Urology, Baltimore

22: 257-350 (Sept.) 1929

*Metastatic Tumors of Urinary Bladder Originating from Carcinomata of Gastro-Intestinal Tract. H. B. Hermann, New York.—p. 257.
Ureterovesical Valve. C. M. Gruber, St. Louis.—p. 275.
Intestinal Obstruction Caused by Acute Seminal Vesiculitis: Two Cases. C. O. Ritch, Chicago.—p. 293.
Fibromuscular Hyperplasia of Prostate: Case; Death Due to Vesical Neck Obstruction. L. L. Veseen, Chicago.—p. 302.
Seminal Vesiculitis or Appendicitis. W. S. Pugh, New York.—p. 313.
Double Ureter: Case. H. A. Callis, Tuskegee, Ala.—p. 321.
Intravesical Use of Mineral Oil and Argyrol Solution in Palliative Treatment of Bladder Diverticulosis. R. V. Day, Los Angeles.—p. 329.
Chewing Gum in Male Urinary Bladder: Case and Treatment. W. D. Goodman Washington, D. C.—p. 335.
New Combined Table for Cystoscopy, Roentgenography and Fluoroscopy. D. M. Davis, Baltimore and S. L. Warren, Rochester, N. Y.—p. 339.
New Children's Cysto-Urethroscope. P. M. Butterfield, New York.—p. 347.

Metastatic Tumors of Urinary Bladder Originating from Carcinomas of Gastro-Intestinal Tract.—In ten cases of carcinoma of the gastro-intestinal tract in the male, metastasis in the urinary bladder was found by Hermann but once. In twelve cases of Krukenberg tumors, metastasis was found in the bladder six times. The bladder was involved simultaneously with the tubes and the uterus. The ovaries seem to play a determining rôle in directing metastasis formation to the pelvic organs. In the stage when the ovarian tumor is accompanied by involvement of the pelvic organs, operative treatment is not justified. Bladder symptoms in cases of Krukenberg tumor are due to the carcinomatous infiltration of the bladder.

Kentucky M. Journal, Bowling Green

27: 379-426 (Sept.) 1929

Paranasal Sinuses. J. D. Williams, Ashland.—p. 383.
Fractures of Nose. C. K. Beck, Louisville.—p. 387.
Etiology and Treatment of Phlyctenular Keratoconjunctivitis. F. W. Pirkey, Louisville.—p. 390.
Traumatic Corectopia: Unusual Eye Case. R. M. Armstrong, Lexington.—p. 392.
Chronic Suppurative Otitis Media: Classification and Treatment. W. A. Poole, Lexington.—p. 394.
Few Thoughts on Chronic Suppurative Otitis Media. G. W. White, Henderson.—p. 396.
Laryngeal Stridor and Dyspnea in Childhood. E. C. Yates, Lexington.—p. 403.
Acute Otitis Media with Facial Paralysis. J. R. Peabody, Louisville.—p. 406.
Recurrent Breast Tumor in Male. L. W. Frank, Louisville.—p. 412.
Tuberculin in Treatment of Bronchial Asthma. O. O. Miller, Louisville.—p. 414.
Splenic Anemia in Child. J. W. Bruce, Louisville.—p. 423.

Minnesota Medicine, St. Paul

12: 515-568 (Sept.) 1929

Fractures of Bones of Hand and Fingers. B. S. Adams, Hibbing.—p. 515.
Fractures of Wrist. M. H. Tibbetts, Duluth.—p. 521.
Fractures of Lower End of Humerus. W. H. Cole, St. Paul.—p. 523.
Fractures of Os Calcis. C. C. Chatterton, St. Paul.—p. 527.
Causes of Delayed Union of Bones. M. S. Henderson, Rochester.—p. 529.
Local Anesthesia in Reduction of Fractures. C. O. Rice, Minneapolis.—p. 532.
Cardiac Decompensation and Treatment. M. Barron, Minneapolis.—p. 535.
Treatment of Psychiatric Patients in Private Practice. E. J. Engberg, St. Paul.—p. 540.
Recurrent Fractures of Patella: Case. W. A. Piper, Mountain Lake.—p. 547.
Early Mobilization and Diathermia in Fracture of Elbow: Two Cases. W. G. Workman, Tracy.—p. 547.
Intracapsular Fracture of Neck of Femur. R. C. Webb, Minneapolis.—p. 549.
Delayed Acapnia and Shock Following Resection of Rib: Case. S. W. Harrington, J. S. Lundy and C. H. Frederickson, Rochester.—p. 550.

Missouri State M. Assn. Journal, Fulton

26: 427-480 (Sept.) 1929

Confidential Relation of Physician to Patient. T. W. Cotton, Van Buren.—p. 427.
*Surgical Applications of Therapeutic Venous Obstruction. B. Brooks, Nashville, Tenn.—p. 428.
Pulmonary Neoplasms: Twelve Cases. P. M. Hickey, Ann Arbor, Mich.—p. 440.
*Undulant Fever: Case Treated with Acriflavine Intravenously. J. C. Kopelowitz, St. Louis.—p. 444.
Undulant Fever. F. C. Helwig, Kansas City.—p. 449.
Feigned Eruptions. J. Grindon, St. Louis.—p. 451.

Surgical Applications of Therapeutic Venous Obstruction.—Clinical experience leads Brooks to believe that venous

occlusion of an amount sufficient to be of value in the prevention of gangrene is often followed by manifestations of venous stasis from which convalescence is prolonged or incomplete. From a consideration of all evidence available, he believes that in operations for the cure of arteriovenous fistula the vein should always be ligated in any of the following conditions: (*a*) If in the course of an operation the artery has already been ligated and it is then found that the complexity of the condition present makes it seem beyond the skill of the operator to attempt to close the fistulous opening, or if the surgeon is uncertain of the success of his attempts, ligation of the vein proximal to the fistula is imperative. (*b*) If an arteriovenous fistula has existed for a relatively short period and if it is necessary to obliterate the artery in order to close the fistula, ligation of the vein is preferable in most instances and is always indicated if the artery is either the popliteal or the axillary. If an arteriovenous fistula is of long duration, the collateral arterial circulation is so abundant that even though it is necessary to obliterate the main artery in closing the fistula, ligation of the vein is unnecessary and even contraindicated. (*c*) There is a certain amount of justification in the view that ligature of the vein is always preferable in the treatment for arteriovenous fistula because of the danger of pulmonary embolism from thrombosis at the site of repair of the fistulous opening in the vein. Brooks does not subscribe to this view. In progressive arterial degenerative disease associated with arterial obstruction, ligature of the vein is at most a palliative measure, the beneficial effects of which only occasionally justify its employment. In instances of sudden arterial occlusion, therapeutic venous obstruction finds its most valuable applications. If from traumatism or in the course of any operation it becomes necessary to ligate a large artery, simultaneous ligation of the concomitant vein should always be considered. If the artery ligated is the popliteal or axillary, ligation of the like named vein is definitely indicated. In instances of ligature of the femoral or brachial arteries, simultaneous ligation of the vein in reality makes little or no difference. If the common femoral artery is ligated, it is wiser to close the wound without ligating the vein, to watch the extremity carefully for signs of impending gangrene, and to ligate the vein only after such signs are evident. From his experience, Brooks feels that ligation of the common iliac artery is not an indication for ligature of the common iliac vein.

Undulant Fever Treated with Acriflavine Intravenously.—Kopelowitz reports a case of undulant fever in which a cure was effected by the intravenous injection of acriflavine. The first injection contained 0.2 Gm. of acriflavine base in 200 cc. of physiologic solution of sodium chloride. Two days afterward, 0.3 Gm. was injected. This dose was repeated on the fourth day. The day after the first injection of acriflavine the patient felt better. He recovered completely and has remained well.

New Jersey M. Soc. Journal, Orange

26: 607-664 (Sept.) 1929

Extra-Uterine Pregnancy: Immediate or Delayed Operation. M. Danzis, Newark.—p. 607.
Medical Commission for Maternal Welfare of Essex County. A. W. Bingham, Newark.—p. 615.
*Determination and Propagation of Sex Before Birth or at Will. J. V. Jaso, Newark.—p. 617.
*Undulant Fever in Northern New Jersey: Three Cases. F. P. Lee and A. I. van Saun, Paterson.—p. 621.
Incidence of Infection with Intestinal Protozoa in New Jersey. D. Causey, Little Rock.—p. 624.
Congenital Lymphangiectatic Edema. J. H. Marcus, Atlantic City.—p. 627.
Blood Sedimentation in Tuberculosis. N. Blumberg and S. M. Harberg, Philadelphia.—p. 628.
Treatment of Arteriosclerotic Heart Disease. H. E. B. Pardee, New York.—p. 630.

Determination and Propagation of Sex Before Birth or at Will.—Jaso's rule for the determination of the sex of the unborn child is as follows: He divides the year into even and odd months. If a woman pregnant for the first time gave birth to a boy, and her last menstrual period occurred in August, which is the eighth month of the year, and therefore an even month, from this data the sex of the subsequent pregnancies can be determined before birth or at will, provided nothing has occurred which might upset the menstrual cycle in the interval between pregnancies. Therefore, if the next pregnancy should occur in an odd month, say March, which is the third month of the year, instead of an even month as was the date of the last menstrual period, the result would be a girl. Cases are cited as evidence of the application of this rule and apparent accuracy of the theory.

Undulant Fever in Northern New Jersey.—Three cases of undulant fever are reported by Lee and van Saun from the vicinity of Paterson, Passaic County. All three cases presented at least four of the classic symptoms of undulant fever. All patients complained of great weakness and drenching sweats and all had the typical undulating temperature. An agglutination with the patient's serum and with two strains of *Brucella melitensis-abortus* was obtained in dilutions ranging from 1:160 to 1:1,280. An agglutination is 1:80 has been considered evidence of undulant fever by most diagnosticians when the clinical symptoms confirm the laboratory observations.

New Orleans M. & Surg. Journal

82: 119-194 (Sept.) 1929

Volkmann's Ischemic Contracture. F. D. Dickson, Kansas City, Mo.—p. 119.
Pharyngo-Esophageal Diverticula. U. Maes, New Orleans.—p. 126.
Lateral Sinus Thrombosis. D. W. Hamrick, University, Miss.—p. 130.
Experimental Observations on Postscarlatinal Nephritis. C. W. Duval, New Orleans.—p. 136.
Gastric Acidity in Congestive Heart Failure. I. L. Robbins, New Orleans.—p. 140.
Ophthalmic Light Therapy. C. A. Bahn, New Orleans.—p. 144.
Industrial Medicine. J. M. Adams, Baton Rouge, La.—p. 149.
Relationship of Feeblemindedness to Criminality. H. R. Unsworth, New Orleans.—p. 156.
Teaching and Care of Feebleminded in State Institution. R. C. Tompkins, Alexandria, La.—p. 161.
Public Health Aspect of Venereal Diseases. O. C. Wenger, Hot Springs, Ark.—p. 164.
Prevention and Control of Tuberculosis in Children. E. A. Bertucci, New Orleans.—p. 172.
Mild Typhus Exanthematicus: Case. W. C. Rucker, New Orleans.—p. 177.

United States Vet. Bur. M. Bull., Washington, D. C.

5: 647-728 (Sept.) 1929

*Surgical Treatment of Pulmonary Tuberculosis in United States Veterans' Bureau. P. B. Matz.—p. 649.
Unfolding of Psychoneurosis. F. L. Long.—p. 668.
*Treatment of Chronic Encephalitis; Stramonium Therapy. J. H. Baird.—p. 675.
Chronic Arsenical Dermatoses. H. P. Timberlake.—p. 678.
Severe Poisoning Following Intravenous Administration of Arsenicals: Two Cases. H. Freed and G. W. Kiehnhoff.—p. 682.
Some Results in Neurosyphilis During Three Years of Treatment. M. Zellin.—p. 686.
*Calcium Chloride in Treatment of Pulmonary Hemorrhages and Intestinal Tuberculosis. A. J. Bondurant.—p. 695.
Tuberculosis of Iris: Case. J. M. Love.—p. 699.
Closure of Culture Tubes and Flasks. T. J. F. Mitschke.—p. 703.
Mouth Conditions Observed in Two Cases of Acute Lymphatic Leukemia. P. H. Eggena.—p. 704.
Double Ureter: Case. H. A. Callis.—p. 706.
Autopsy Report of Case of Paresis Treated with Tertian Malaria. S. Lichtenstein.—p. 708.
Incomplete Pulmonopleural Fistula: Case. G. A. Stock.—p. 710.

Surgical Treatment of Pulmonary Tuberculosis in U. S. Veterans' Bureau.—Matz reports on 149 patients with pulmonary tuberculosis who were treated by surgery other than induced pneumothorax; the number of surgical operations performed was 153. The majority of the patients selected for this form of treatment had tuberculous pulmonary lesions which had been treated from one to ten years. There were various types of tuberculous lesions and chest abnormalities among the patients treated by surgery. The most common of these, in the order of frequency, were cavitation, fibrosis, extensive pleural adhesions, exudative lesions, and retraction and deviation of the thoracic viscera. Of the operations performed, the majority were phrenic nerve avulsions; next in the order of frequency were drainage operations, various types of thoracoplasty, and the Jacobaeus operation. It was noted that in those patients who underwent a thoracoplasty usually two or more indications existed for this surgical procedure. There were several complications following thoracoplasty operations. These consisted of delayed healing, wound infection, tachycardia, cardiac failure, operative shock, and progression of the tuberculous disease to the healthy lung. There were 100 cases of phrenic nerve avulsion. The effects of phrenic nerve avulsion, in the order of frequency, were: col-

lapse of lung, relaxation of adhesions, control of cough, the diminution of the amount of sputum, and the contraction of cavities. As the result of all the operations, 47.06 per cent were followed by improvement with capacity to work or with slight improvement; 23.53 per cent were followed by a stationary condition; the tuberculous disease became worse in 14.38 per cent of cases, and 15.03 per cent of the cases were followed by death. While the general opinion of thoracic surgeons is that unilateral cases are more appropriate for surgical intervention, 107 operations out of the total of 153 were in cases in which there was bilateral involvement. The best results with surgical treatment were observed in cases in which there was basal involvement; the next best results were observed in bilateral cases with less than one third of the better lung involved; the unilateral cases came next; the poorest results were obtained in the bilateral cases with more than one third of the better lung involved. The mortality rate was highest in those cases with basal involvement; the next highest mortality rate was in the unilateral cases; the lowest mortality was among the bilateral cases with less than one third of the better lung involved. There were 107 patients with pulmonary lesions characterized by cavity formation. In a few instances surgical treatment was followed by the disappearance of the cavities; in a large number of cases a diminution of the size of the cavities took place; in most instances the size of the cavities was unchanged. A study of the noncompressed lung following thoracic surgery showed that, in a considerable number of cases, improvement of the physical signs of the contralateral lung followed. However, these beneficial results were offset by the fact that in approximately an equal number of cases the tuberculous lesions in the contralateral lung became more extensive; in the majority of instances there was no change in the physical signs of the noncompressed lung. This study indicates that surgical treatment, in most instances, does not cause a disappearance of tubercle bacilli from the sputum. Following thoracic surgery, a considerable number of patients showed a diminution of the quantity of sputum, a decrease of cough and expectoration, a decided reduction of temperature, and an increase of weight. All but one of the surgical operations were done under local anesthesia. In this series twenty-three died following the operation: four had had a thoracoplasty, eight an avulsion of the phrenic nerve, and eleven a drainage operation.

Treatment of Chronic Encephalitis; Stramonium Therapy.—Datura stramonium given in the form of powdered dry leaves in gradually increasing dosage until maximum results are obtained followed by a more or less fixed daily dosage, large enough to maintain partial relief of symptoms but not large enough to produce untoward symptoms (mydriasis and diarrhea), has in the cases reported by Baird proved to be of real value as a palliative remedy in parkinsonism of epidemic encephalitis. The only ill effect that has been noted in the stramonium method of treatment was a transient disturbance of vision in one case, the symptoms more than likely being due to a rather marked mydriasis produced by the drug. This symptom promptly disappeared following temporary withdrawal of the drug and did not reappear after the resumption of treatment in smaller doses.

Calcium Chloride in Treatment of Pulmonary Hemorrhages and Intestinal Tuberculosis.—Bondurant is of the opinion that calcium chloride has a place in the treatment of intestinal tuberculosis. In cases that are practically in the terminal stage, no benefit can be expected. In other far-advanced cases, however, calcium chloride gives symptomatic relief and in several respects makes the patient more comfortable.

West Virginia M. Journal, Charleston

25: 513-576 (Sept.) 1929

Diagnosis of Tumors of Spinal Cord. D. A. MacGregor, Wheeling.—p. 513.
Blood Stream Infections. S. R. Miller, Baltimore.—p. 523.
Chronic Nephritis in Young Adults. E. L. Armbrecht and R. J. Armbrecht, Wheeling.—p. 529.
Some Difficulties Encountered in Diagnosis of Abdominal Conditions. J. Friedenwald and T. H. Morrison, Baltimore.—p. 533.
Puerperal Eclampsia. G. R. Maxwell, Morgantown.—p. 539.
Early Recognition of Some Common Urologic Conditions. D. Brannan, Morgantown.—p. 545.
Economics. H. V. King, Morgantown.—p. 552.
Treatment of Snake-Bite: Cases. E. B. Henson, Charleston.—p. 556.
Hemolytic Anemia of Pregnancy. T. W. Nale, Charleston.—p. 557.
Polio-Encephalitis. E. A. Holland, Bryn Mawr, Pa.—p. 559.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British J. of Actinotherapy, London

4: 93-112 (Aug.) 1929

Treatment of Burns by Ultraviolet Light. J. Peake.—p. 96.
Prescribing and Administering Electrotherapy. R. Kovacs.—p. 98.
Treatment of Sciatica by Physical Methods. K. R. C. Hallowes.—p. 101.
Design of Ultraviolet Goggles. B. D. H. Watters.—p. 103.
Medical Review of British Spas: II. M. B. Ray.—p. 104.
Value of Ultraviolet Irradiation after Prostatectomy. H. W. Hales.—p. 107.

British J. Bio-Physics, London

1: 187-203 (Sept.) 1929

Treatment of Cervicitis by Diathermy. C. A. Robinson.—p. 189.
Actinotherapy in Relation to Calcium-Phosphorus Therapy. A. Furniss.—p. 191.
Technic of Dental Actinotherapy. F. Talbot.—p. 193.
High Frequency in Therapeutics. E. Browning.—p. 195.
Radiational Treatment of Corneal Ulcers. W. S. Duke-Elder.—p. 197.
Practical Radiology. H. Wigg.—p. 199.

Edinburgh Medical Journal

36: 513-572 (Sept.) 1929

Egypt and Medicine: Retrospective and Prospective. R. Philip.—p. 513.
*Mental Inefficiency in School Children. T. Ferguson.—p. 526.

Mental Inefficiency in School Children.—Ferguson says that, of children from certain areas referred for examination, 25 per cent showed a degree of physical disability which probably aggravated their mental condition. Over the entire research, sixteen children per 10,000 in actual school attendance were imbeciles. The proportion of imbeciles was greater in country schools. The incidence of certifiable feeblemindedness was fairly equal in the two fields, and amounted to ninety-eight children per 10,000 on actual roll of attendance. Of the children examined, twenty-four per 10,000 exhibited gross mental instability, with or without subnormality. Of seventy feebleminded children who attended a special school for at least two years and have been kept under observation for at least five years after leaving school, 40 per cent are in full employment, some of them skilled artisans. Of the backward children treated, 50 per cent were sufficiently improved to be able to assume their normal places in the school, the chief factors influencing the measure of success being the early institution of treatment, longer persistence in treatment and careful regulation of the size of the classes. The cause of the retardation in about 40 per cent of "backward class" children is inherent dulness; in the great majority of the remainder the condition is due to physical defect or to the result of previous illness.

China Medical Journal, Shanghai

43: 757-858 (Aug.) 1929

Minute Anatomy of Vascular System of Dog's Spleen. L. P. Lin, R. H. Mole and H. S. D. Garven.—p. 757.
*Anemias in China. H. H. Morris.—p. 768.
Splenomegaly: Diagnosis of Kala Azar. E. B. Struthers.—p. 772.
Surgery of Spleen. M. M. Zinninger.—p. 775.
Contributions of Experimental Study on Cause of Toxic Jaundice. Y. Ohno.—p. 792.
Experimental Work with Bacteriophage. R. C. Robertson.—p. 795.
Contraindications to Anesthesia. J. T. Cheng.—p. 803.
Von Jaksch's Anemia (Pseudoleukemia): Case. J. C. Lawney and S. M. Chien.—p. 809.
Schistosomiasis Japonicum: Case. K. B. Liu.—p. 812.

Anemias in China.—Morris says that in China a certain amount of interest lies in the similarity between pernicious anemia and sprue, which has been discussed in a number of cases in recent years, especially as regards individuals who have had to leave this country and return to their homeland because of one or the other of these conditions. In several of these cases the decision as to whether it was sprue or pernicious anemia has seemed to be a difficult one. Additional interest is also lent by the fact that these two diseases, as far as is known, are comparatively rare among the Chinese. They are far less common among Chinese than among westerners. Differences in the diet of the Chinese people may have some share in it.

Bulletins et Mém. de la Soc. des Chirurgiens de Paris

21: 373-416 (May 17) 1929

Polydactylism as a Reversive Anomaly. H. Brodier.—p. 375.
Osteosynthesis in Fractures of Patella. H. Judet.—p. 376.
*Diverticulitis from Perforation of Meckel's Diverticulum by a Fish Bone. H. Blanc.—p. 378.
Cecosigmoidostomy. M. Manon.—p. 379.
*Use of Mikulicz's Drain in Hysterectomy. M. Manon.—p. 383.
*Torsion of Tube and Ovary. P. Laurent.—p. 388.
Interpretation of Roentgenogram of Cavity of True Pelvis. Pruvost. —p. 390.
Von Hacker's Operation in Treatment of Hypospadias. H. Mayet. —p. 394.
Voluminous Inguinoscrotal Hernia with Double Sac. P. Muller.—p. 404.
Danger of Subcutaneous Injections of Procaine Hydrochloride and Epinephrine. E. Bressot.—p. 406.
Tibiofibular Diastasis. E. Juvara.—p. 409.
Pregnancy and Fibroma. Duchet-Suchaux.—p. 415.

Diverticulitis from Perforation of Meckel's Diverticulum by a Fish Bone.—Blanc describes this accident occurring in a man, aged 41, in whom a diagnosis of appendicitis had been made.

Use of Mikulicz's Drain in Hysterectomy.—Manon's paper on this subject is discussed by Petit de la Villéon. Manon reports favorable results in eleven cases in which this method of drainage was applied; in eight cases of suppurating salpingitis, twice when performing hysterectomy for cancer of the cervix and once in a case of ruptured encysted extra-uterine pregnancy with suppuration. On the basis of these results and his own experience, Petit de la Villéon also recommends the use of Mikulicz's drain in gynecologic operations in which peritoneal infection is imminent.

Torsion of Tube and Ovary.—Laurent describes the case of a girl, aged 7, in whom a diagnosis of acute appendicitis had been made; at operation he found that a small cystic right ovary had produced a triple torsion of the utero-ovarian pedicle and of the uterine tube.

Paris Médical

2: 81-96 (July 27) 1929

Serotherapy in Typhoid. A. Rodet.—p. 81.
*Acute Febrile Coronary Angor. C. Lian.—p. 86.
*Diabetes with Acetonuria and Hypoglycemia. F. Rathery and M. Rudolf.—p. 94.

Acute Febrile Coronary Angor.—Lian, in discussing the treatment of thirty-four patients with symptoms of the disease, points to the electrocardiogram as an important aid in confirming the diagnosis. To guard against myocardiac ischemia he advocates the oral administration of sodium citrate, a solution of benzyl benzoate or papaverine. Three patients in whom diathermy was used reacted favorably. Cardiac weakness may be overcome by the intramuscular injection of digitalis preparations coincident with subcutaneous injections of camphor in oil. In certain cases the intravenous injection of ouabain appears indicated. Antisyphilitic treatment is but rarely necessary and Lian's own as well as Anglo-American statistics show the rare concurrence of the two diseases. Roentgen treatment is not advised during the attack but only after the acute stage has subsided.

Diabetes with Acetonuria and Hypoglycemia.—Rathery and Rudolf report the occurrence of this condition in a patient, aged 41. A test diet revealed disturbances in the carbohydrate metabolism.

2: 97-128 (Aug. 3) 1929

Open Air Schools. P. F. Armand-Delille.—p. 97.
Physical Education. P. Tissié.—p. 104.
Mental Overworking of Pupils. L. Dufestel.—p. 115.
Vocational Guidance. A. Moulin.—p. 116.
*Functional Examination of Heart and Lungs in School Children. A. Thouvenel.—p. 123.

Functional Examination of Heart and Lungs in School Children.—In a study of the pulse rate, arterial tension, respiratory movements and quotient in eighty school boys between the ages of 9 and 14, Thouvenel did not find a parallelism between the acceleration of the pulse and the acceleration of the respiration after exercise. Therefore the report of functional cardiac or pulmonary insufficiency based on the result of such studies should be made with reservation, especially if the report is made to aid the pupil in the choice of a profession.

Presse Médicale, Paris

37: 973-988 (July 27) 1929

*Regulation of Arterial Circulation in Heart. J. Demoor.—p. 973.
*Functional Mitral Insufficiency. E. Géraudel.—p. 975.

Regulation of Arterial Circulation in Heart.—The study of the rhythm of contraction of the heart in the light of modern research is reviewed by Demoor. Experiments in vivo and in vitro have proved the existence of certain "active substances" which stimulate contraction of the heart muscle. The result of these experiments is the recognition of the active substances originating within the heart and of a second type of stimulus caused by innervation from without. The problem of the origin of the rhythm of contraction is only partially solved. The pathogenesis of arrhythmia remains virtually a mystery.

Functional Mitral Insufficiency.—Géraudel presents his theories elucidated by the analysis of several cases. So-called functional mitral insufficiency results from dilatation of the left ventricle. This condition may be caused by slowing down of the ventricle or by weakness of the myocardium. The distention is especially evident on the left side, where one of the cusps of the mitral valve originates; outwardly bulging is present and in the interior there is an enlargement of the space between the cusp and the papillary muscles which leads to an escape of blood, thus causing a murmur.

Schweizerische medizinische Wochenschrift, Basel

59: 737-756 (July 20) 1929

Proprioceptive Reflexes of Respiratory Musculature. A. Fleisch.—p. 737.
Variability of Bacteria. A. Grumbach.—p. 739.
*Experimental Studies on Tuberculous Bacillemia. J. E. Wolf.—p. 742.
Classification, Definition and Nomenclature of Râles. A. Winkler. —p. 744.
Dangers of Poisoning in Chemical Removal of Deposits from Boilers. M. H. Remund.—p. 747.
Practical Value of Decoloration Method for Rapid Bacteriologic Diagnosis of Diphtheria. T. Reh.—p. 751.

Experimental Studies on Tuberculous Bacillemia.—In order to determine whether tubercle bacilli enter the blood stream following the creation of an artificial pneumothorax, Wolf examined the blood of twelve tuberculous patients before as well as after this treatment. The cultivation method as well as the animal experiment were employed. The results of the blood tests were negative in all patients. The author comes to the following conclusions: 1. Tuberculous bacillemia, if it occurs at all, is sporadic and only of short duration. The assumption of a constant presence of virulent tubercle bacilli in the blood stream of tuberculous patients has no valid foundation and cannot be accepted. 2. Tuberculous bacillemia, which sometimes develops after the creation of a spontaneous pneumothorax and which is followed by miliary dissemination, is not caused by the mechanical compression of the tuberculous lung. The passing of the bacilli into the blood stream is mainly due to direct opening of the vascular system, as a consequence of the tearing of tuberculous infected tissues. However, it is possible that the mechanical factor of a sudden compression may be of secondary influence. 3. The increase in tuberculous antibodies, which occasionally can be observed during the first two days after the creation of an artificial pneumothorax, is not due to the fact that bacilli enter into the blood stream but rather to an increased resorption of toxins and bacillar products with antigenic qualities. A bacillemia, even of a mild degree, does not develop following the creation of a pneumothorax. And even under great pulmonary pressure the filtrable form of the virus of tuberculosis does not enter the blood stream in sufficient quantities to cause a tuberculous infection in guinea-pigs that have been inoculated with the blood.

Deutsche medizinische Wochenschrift, Berlin

55: 1243-1286 (July 26) 1929

Active Immunization Against Diphtheria. R. Otto and G. Blumenthal. —p. 1243.
Hypothetic Nature of Term "Constitution"; Misuse of This Term in Forensic Medicine. W. Riese.—p. 1244.
Time and Technic of Ligation of Veins in Puerperal Pyemia. M. Martens.—p. 1246. C'cn.
Investigations on Intracutaneous Ferricyanide Reaction According to Brugsch. S. Dietrich.—p. 1248.

Therapeutic Value of Aconite. G. Pietrkowski and A. Schürmeyer.—p. 1249.
*Treatment of Urinary Infections in Women, with Peroral Administration of Large Doses of Methenamine. K. Tietze.—p. 1252.
Inhalation Therapy of Asthma. H. Feigen.—p. 1253.
*Value of Trichlorisobutyl Alcohol in Treatment of Nervous Vomiting and of Vomiting Due to Pertussis. P. Freud.—p. 1256.
Experiences with Tribromethanol Narcosis. F. Jaeger.—p. 1261.
Removal of Wrinkles from Face. F. Halla.—p. 1262.

Treatment of Urinary Infections in Women, with Peroral Administration of Large Doses of Methenamine.—Tietze points out that urinary infection occurs comparatively often, especially as a complication of pregnancy. Because his method of treatment did not always bring satisfactory results, he followed Schulten's suggestion. Schulten advocated peroral administration of large doses of methenamine. The author gives tabular reports on thirty patients who were treated in this manner. The patients were affected with cystitis, cystopyelitis or pyelitis. Twelve of them were pregnant and eleven were in the puerperium. The patients received daily 10 Gm. of methenamine, which most of them could take without difficulty. Minor complications developed in three cases. The author asserts that the results of this therapy were not in the least satisfactory, either in the pregnant and puerperal women or in the others. In comparing these thirty patients with 123 patients who had been treated according to the older methods, with catheterization of the ureter, permanent drainage and irrigation of the bladder with disinfecting solutions, the author comes to the conclusion that this local therapy is superior to the peroral administration of large doses of methenamine.

Value of Trichlorisobutyl Alcohol in Treatment of Nervous Vomiting and of Vomiting Due to Pertussis.—Freud employed trichlorisobutyl alcohol in seventeen cases of nervous vomiting in infants, in fourteen cases of nervous vomiting in older children and in twenty-three cases of pertussis. It was found that this medicament gave the desired results in nearly all cases. The effective dose was 0.05 Gm. Harmful effects did not become manifest. However, in several cases drowsiness developed after eight or ten days of medication with trichlorisobutyl alcohol. In these instances the treatment was discontinued, and the drowsiness disappeared again after one or two days. This sleepiness may also be counteracted by adding to the medicament 0.015 Gm. of caffeine. The author points out that trichlorisobutyl alcohol should not be employed in cases in which the vomiting is not caused by nervousness or pertussis but rather by gastro-intestinal catarrh or infectious diseases. In such patients trichlorisobutyl alcohol will counteract the vomiting, but it cannot influence the underlying cause, and consequently it only masks the disease. However, in cases of nervous vomiting and in pertussis, trichlorisobutyl alcohol has proved to be superior not only to dietary treatment but also to other medicaments.

Deutsche Zeitschrift für Chirurgie, Leipzig

216: 293-429 (June) 1929

Treatment of Fractures: Results in Relation to Insurance Demands. A. Rütz.—p. 305.
*Treatment of Fractures of Femur and Patella by Mobilized Extension. R. Kraft.—p. 335.
*Spontaneous Fracture of Atrophic Bones (Result of Tuberculous Arthritis). G. Westphal.—p. 342.
Treatment of Radius Fracture: Relation of Subluxation in Distal Radio-Ulnar Joint. F. Schnek.—p. 351.
Treatment of Injuries and Diseases of Scaphoid and Semilunar Bones. B. Pfab and W. Schosserer.—p. 357.
Treatment of Fractures of Head of Radius. B. Pfab.—p. 376.
Treatment of Habitual Shoulder Luxations. W. Schosserer.—p. 402.
Subcutaneous Rupture of Tendon. W. Schosserer.—p. 411.
Malignant Tumor of Carotid Gland. L. Schmidt.—p. 414.
Wandering of a Lipoma. Osterland.—p. 425.

Treatment of Fractures of Femur and Patella by Mobilized Extension.—Kraft emphasizes the importance of retaining motion of the muscles while immobilizing the bone in the treatment of fractures. He describes the use of an apparatus attached to a bed which allows changes in the position of the leg to be made in cases of fractures of the femur, thus guarding against atrophy of the muscles and stiffening of the joint. In twelve patients with fracture of the femur and four others with fractures of the patella the extension bed proved its efficacy.

Spontaneous Fracture of Atrophic Bones (Result of Tuberculous Arthritis).—Westphal reports twelve cases of infraction and fracture of bones, eight of which were fractures of the femur occurring in tuberculous children. In these cases the hip joint had been immobilized over a long period and the femur was atrophic. The fracture occurred in several instances without conscious trauma and was accidentally discovered while a control roentgenogram was being taken. Attempts to guard against bone atrophy by medication have not accomplished their end so far, so that a mechanical support of the femur appears indicated. In children wearing hip joint bandages this should be extended down to the knee. Westphal advocates repeated roentgen observation of the bones, as the occurrence of such accidents is more frequent than has been stated heretofore.

217: 161-288 (July) 1929

*Acid-Base Balance in Experimental Icterus: Significance for Surgical Intervention. H. Achelis and E. Schneider.—p. 161.
Surgery of Zones Above and Below Diaphragm. W. Fick.—p. 176.
Atypical Diseases of Gallbladder. H. Friedrich.—p. 200.
*Conservative Methods of Operating on Stomach. H. Brauneck.—p. 228.
*Choice of Method of Operating for Carcinoma of Rectum. W. Goldschmidt.—p. 253.
*Treatment of Meningitis with Methenamine. P. Rostock.—p. 264.
Metastatic Melanosarcoma of Mamma. C. Bauer.—p. 280.
Results of Preliminary Ligation of External Carotid Artery. H. Hanke.—p. 283.

Acid-Base Balance in Experimental Icterus: Significance for Surgical Intervention.—Achelis and Schneider studied the metabolism of the liver under physiologic conditions and those created by operative intervention in any part of the organism. The liver is an indicator of operative trauma or shock and it was found that patients with icterus were less resistant than others. From this clinical experience and their experiments on dogs, Achelis and Schneider conclude that the degree of degeneration in the liver is an index of the resistance of the individual. A low glycogen content of the liver results in the absence of an increased sugar content of the blood in acidosis. The liver can compensate an acidosis, however, if it has not undergone marked fatty degeneration.

Conservative Methods of Operating on Stomach.—Brauneck discusses the results of Sattler's operation for gastric ulcer in 124 cases extending over a period of seven years. Pursestring suture was performed in twenty-four, with death of the patient in three cases; transverse suture was performed in 100 cases with death in ten. Of sixty-nine patients who came for late examination, almost all were free from symptoms. The operation is indicated only in cases in which resection cannot be undertaken.

Choice of Method of Operating for Carcinoma of Rectum.—On the basis of a study of diverse operative methods applied by 116 surgeons within the last eight years, Goldschmidt concludes that a typical standard cannot be set for any kind of operation. The statistics obtained by many workers are criticized. Goldschmidt advocates strict individualization, as each case presents a new problem.

Treatment of Meningitis with Methenamine.—From reports in the literature and his own clinical experience and animal experiments, Rostock concludes that the effect of methenamine as applied by injection or given by mouth in cases of light meningitic infection is favorable. Intravenous injection is given preference over intramuscular injection, as the latter is very painful. Direct injection of the drug into the spinal canal may be made when performing lumbar puncture. In severe infection of the meninges with virulent bacteria the action of methenamine is not reliable. However, Rostock advocates its prophylactic administration in all operations that involve opening of the cerebral meninges or in fractures of the skull.

Klinische Wochenschrift, Berlin

8: 1337-1384 (July 16) 1929

Disturbances in Peripheral Blood Vessels in Young and Middle-Aged Persons. H. Assmann.—p. 1342.
Oxycholesterol in Organism. H. Beumer and G. Bischoff.—p. 1351.
Nature of Bone Softening in Tuberculosis. W. Pagel.—p. 1352.
Allergic Phenomena in Experimental Arsphenamine Sensitization. E. Nathan and A. Munk.—p. 1354.
Dermatomycosis Resembling Postscarlatinal Desquamation. S. M. Peck.—p. 1357.

*Pernicious Anemia Following Stagnation of Intestinal Contents in a Side Pocket of Small Intestine. E. Hartmann.—p. 1359.
Calorimetric Symptom of Retroperitoneal Construction, Caused by Pressure on Sympathetic Nerve. E. Hesse.—p. 1360.
Inhibition of Blood Coagulation by Caffeine Sodiobenzoate. Klinke.—p. 1363.
Distribution of Uric Acid in Blood and Tissue Fluids. J. Wohlgemuth and G. Scherk.—p. 1363.
Erythrocyte Sedimentation and Its Practical Value. W. Graef and L. Ihm.—p. 1365.

Pernicious Anemia Following Stagnation of Intestinal Contents in a Side Pocket of Small Intestine.—Hartmann reports a case of pernicious anemia which he considers developed following obstruction of the small intestine. At the postmortem examination a surgical instrument was found which dated from an operation for pseudomucinous cystoma performed six years previously. The pocket in which the instrument was embedded communicated with two intestinal loops, one of which led to, the other away from, the pocket. The distal intestinal segment did not present a stricture; however, it may be assumed that evacuation of the pocket was delayed and that the intestinal content remained for some time in the small intestine. This condition favored the growth of bacteria that under normal conditions are found in only the large intestine. The formation of hematoxic bodies resulted, causing injury of the intestinal wall. Thus a toxicosis was produced, leading to the characteristic symptoms of pernicious anemia.

8: 1385-1432 (July 23) 1929

Status Thymicolymphaticus in Light of What is Now Known About Normal Thymus. J. A. Hammar.—p. 1385.
*Clinical Aspects of Infectious Jaundice (Weil's Disease). J. Strasburger and O. Thill.—p. 1391.
New Serologic Tests on Convalescing Diphtheria Patients. H. Hentschel and L. Szegö.—p. 1395.
*Studies on Age of Manifestation and Hereditary Conditions in Diabetes Mellitus in Children. R. Priesel and R. Wagner.—p. 1398.
Insulin and Dextrose Tolerance Test in Patients with Disturbances in Water Metabolism. H. Taterka and F. Oestreicher.—p. 1401.
Diagnostic Significance of Microresidues: Value of Ehrmann's Test Drink in Examination of Secretion and Motility of Stomach. L. Dinkin.—p. 1402.
Action of Parathyroid Preparation in Tetania Parathyreopriva. A. W. Elmer and M. Scheps.—p. 1404.
Action of Atropine on Respiratory Metabolism. F. Kerti.—p. 1408.
Investigations on Causes of Dyspnea in Obese and Asthenic Patients. H. W. Bansi, G. Groscurth and H. Weigel.—p. 1409.
Influence of Physiologic Changes in Centers of Hearing in Cerebral Cortex of Dogs on Proteolytic Processes in Same. S. W. Fomin.—p. 1409.
Suprarenal Insufficiency (Addison's Disease) Probably of Syphilitic Origin. A. Zerkowitz.—p. 1410.
Carbohydrate Substitutes in Treatment of Diabetes. A. Gottschalk.—p. 1411.

Clinical Aspects of Infectious Jaundice (Weil's Disease).—Strasburger and Thill review their experiences in twenty-six cases of infectious jaundice which came under their observation during the war. They point out that heretofore enlargement of the spleen was considered one of the cardinal symptoms. The newer clinical observations and the results of postmortem examinations, however, prove that enlargement of the spleen occurs in less than half of the cases. Icterus develops in various degrees, and it usually sets in several days after the first appearance of the disease. Nephritic symptoms always become manifest in the early stages of the disease. This is probably due to the fact that the *Leptospira icterohaemorrhagiae* usually attacks the kidneys. Intense muscular pain, especially in the calves of the legs, is one of the most characteristic signs of infectious jaundice. The peculiar fever curve the authors regard as the pathognomonic symptom. It shows three distinct stages. The first period, which usually lasts from seven to nine days, is characterized by a steep rise and a lytic steplike fall. This is followed by a fever free interval which lasts from four to eight days. During the third period several wavelike relapses may be noted. Other symptoms that generally become manifest during infectious jaundice are headache, insomnia, great thirst, dry tongue and sometimes also vomiting, diarrhea, nosebleed, cardiac disturbances, leukocytosis, lymphopenia, swelling of the cervical lymph nodes and peculiar exanthems. Concerning the prognosis, it is stated that the complete convalescence often requires several months, but in a moderate climate most patients finally recover. In other countries, however, especially in Japan, a mortality up to 30 per cent has been observed. Good results are sometimes obtained with the serum of convalescents. However, comparatively large doses and an early administration are the requisites for the effectiveness of this method. Neoarsphenamine is not of value in infectious jaundice; bismuth therapy, however, yields favorable results. In mild cases dietetic and symptomatic treatment is usually sufficient. The authors also give a detailed report of two cases of infectious jaundice, recently treated. The anamneses in both cases gave indications of a contact with rats, and also of a possible infection with water spirochetes.

Studies on Age of Manifestation and Hereditary Conditions in Diabetes Mellitus in Children.—Priesel and Wagner made careful observations in 108 children with diabetes mellitus. Their investigations on the age of manifestation and on hereditary conditions are summed up as follows: 1. The maximum of manifestations of diabetes mellitus falls in the thirteenth year, or in the time of the most intense growth. This circumstance suggests that in these individuals the increase of the islands of Langerhans does not keep in the right proportion with the general growth. 2. Diabetes in children always represents a congenital deficiency in the islands of Langerhans, and it does not develop from a postnatal noxa. 3. Diabetes in children is an hereditary disease. The anamnesis revealed a hereditary predisposition in 27 per cent of the cases. 4. The greatest frequency of heredity to diabetes was found in Jewish children. The authors think that this is due to endogamy. 5. Diabetes mellitus may be passed on as a recessive characteristic and as a dominant one. 6. Double diabetic heredity increases the possibility of diabetes in the children.

Medizinische Klinik, Berlin

25: 1123-1158 (July 19) 1929

Clinical Tests on Curative Action of Medicaments. W. Stepp.—p. 1123.
Pathogenesis of Disturbances Following Lumbar Puncture. H. Ehrenwald.—p. 1126.
Diagnostic Agglutination and Vaccine Therapy with Modified Tubercle Bacillus. C. H. H. Spronck and W. Hamburger.—p. 1130. C'td.
Necessity of Early Operations in Hernias. G. Neugebauer.—p. 1132.
*Transitory Dilatation of Heart and Aorta, and Vestibular Disturbances Caused by Powerful Electric Current. O. J. Lasius.—p. 1133.
*Bilateral Central Pneumonia Following Poisoning with Compound Solution of Cresol. K. Burg.—p. 1134.
Methods of Cultivation of Tubercle Bacilli. W. Blumenberg.—p. 1136.

Transitory Dilatation of Heart and Aorta, and Vestibular Disturbances Caused by Powerful Electric Current.—Lasius reports the case of a man, aged 29, who, after coming in contact with a powerful electric current, was unconscious for a time. When he arrived at the hospital, about one hour after the accident, he appeared weak and sleepy. He had chills and tremors and complained of severe pains in the left side, especially in the heart and in the head. The motility of the left arm and foot were also reduced. Marks on the left thumb and on the bottom of the feet indicated that the current had entered the body through the left thumb and had passed out through the feet. Auscultation did not reveal abnormalities in the internal organs, but because the patient always complained of pains in the heart, roentgenoscopy was performed. It revealed a dilatation of the heart and of the aorta. The author assumes that, when the current passed through the heart, it caused changes in the myocardium, which in turn led to the dilatation. The patient's condition improved gradually. Roentgenoscopy, two weeks later, showed that the enlargement of the heart and of the aorta had decreased considerably. In order to relieve the headaches, a lumbar puncture was performed. After that the pressure and the pain in the head were somewhat reduced. Examination of the ears revealed disturbances in the left inner ear, especially in the vestibule. They were still noticeable six weeks after the accident, when all other symptoms had already disappeared. After reviewing the literature and on the basis of his own observations, the author concludes that electric traumas generally become manifest in functional disturbances. In most instances normal conditions are restored in a comparatively short time. However, in some instances late death may result from an electric trauma. The case reported by the author illustrates the great significance of roentgen examination in these cases.

Bilateral Central Pneumonia Following Poisoning with Compound Solution of Cresol.—Burg points out that central pneumonia occurs seldom. He gives a detailed description of

one case. A man, aged 24, intending to commit suicide, drank half a glassful of a compound solution of cresol. About two hours later he was found unconscious. Following an irrigation of the stomach he regained consciousness. Examination revealed eschars in the oral cavity, increased temperature and a weak rapid pulse. The patient was given large amounts of magnesium oxide by mouth and injections with metrazol. The eschars healed quickly, and the patient's general condition seemed to improve, when on the third day he showed symptoms of pneumonia. On the basis of a careful examination the condition was diagnosed as central pneumonia of the right side. The patient was given an intravenous injection of 100 cc. of antipneumococcus serum. After that the fever subsided, but two days later the patient complained of pains in the left side of the chest. Examination revealed that pneumonia was also present in the central lobe on the left side, and the case was now diagnosed as bilateral central pneumonia. The author points out that though central pneumonia occurs seldom, a case of bilateral central pneumonia is still more rare. He asserts that this was the first case of this type which came to his attention. Concerning the pathogenesis of this case, the author states that the comatose condition of the patient after the poisoning, exposure to cold and the irritation of the mucous membranes of the air passages by the poisonous substance were probably the main etiologic factors.

Münchener medizinische Wochenschrift, Munich

76: 1157-1198 (July 12) 1929

*Time of Capacity for Conception in Women During Intermenstrual Cycle. H. Knaus.—p. 1157.
Various Forms of General Infection with Staphylococci. S. Schulten.—p. 1161.
Diagnosis, Prognosis and Treatment of Postanginal Sepsis. K. Kissling.—p. 1163.
Postanginal Pyemia and Symptomatology of Various Forms of Angina. K. E. Russow.—p. 1168.
*Erythrocytosis in Relation to Atypical Cerebral Diseases. R. Brandl.—p. 1169.
Endemic Infection with Trichocephalus Dispar in Region of Niemen and in Lithuania. I. Warnowsky.—p. 1171.
*Successful Embolectomy on Axillary Artery. A. Kantor.—p. 1172.
*Alcohol Injection in Treatment of Dysmenorrhea. D. Blos.—p. 1173.

Time of Capacity for Conception in Women During Intermenstrual Cycle.—Knaus advances evidence that in sexually mature women there exists a period of physiologic sterility. He asserts that women who menstruate regularly every four weeks do not conceive in the first ten days and not after the eighteenth day of the menstrual cycle.

The fecund period, during which intercourse may lead to pregnancy, begins with the eleventh day and ends with the eighteenth day. The most favorable time for conception is during the fourteenth, fifteenth and sixteenth days of the menstrual cycle. In women in whom menstruation occurs every three weeks, the sterile period has not yet been definitely determined. However, it is known that in these women ovulation occurs sooner than in women with a four week cycle. It is also evident that in women with an irregular menstrual period or in those with temporary amenorrhea, the time of conception will also be irregular.

Erythrocytosis in Relation to Atypical Cerebral Diseases.—Brandl points out that diseases of the blood often lead to nervous disturbances. Diseases of the spinal cord have often been noted as sequelae of primary or secondary anemia. However, the fact that an abnormal increase in the erythrocytes and in the hemoglobin often has harmful effects on the central nervous system has so far received little consideration. It is known that erythrocytosis may cause congestion, dizziness and headaches, but it is also possible that organic disturbances of the central nervous system may result. The author observed numerous cases of epileptic and vasomotor disturbances. In many of these patients the face, especially the forehead, was flushed. He assumed that this symptom was probably an indication of pathologic changes in the blood, and he found that in nearly all these patients the number of erythrocytes and the hemoglobin content far exceeded the normal. An increased blood pressure was likewise observed in many. The author gives detailed reports of several cases, and he concludes that an examination of the blood is advisable in all cases of cerebral disturbances. It will be helpful for the diagnosis, and eventually it will indicate an abnormal organic condition as the underlying cause of the psychic disturbances.

Successful Embolectomy on Axillary Artery.—Kantor reports the case of a woman, aged 51, who sixteen days after an operation for myoma of the uterus suddenly felt a severe pain in the right arm. The active movements of the hand and of the lower part of the arm were much reduced. The hand was weak and the arm appeared pale, limp and cool. The pulse was not perceptible. The case was diagnosed as embolism of the axillary artery, and an operation was performed about two hours after the patient had felt the first sensation of pain. Recovery was uneventful and ten days later the patient was dismissed. An early embolectomy is of the greatest significance in cases of this type because it prevents gangrene and obviates an amputation. The author points out that embolectomy is performed only in rare instances, not only because the patient fails to consult the physician early enough, but also because the seriousness of the condition is often not recognized, and many practitioners are not sufficiently acquainted with the operation of embolectomy. In order that this operation should bring the desired results, immediate action is essential. The author considers not more than ten hours after the manifestation of the first symptoms as the latest point of time at which embolectomy will still be helpful.

Alcohol Injection in Treatment of Dysmenorrhea.—Blos treated twenty-four patients with severe dysmenorrhea by injecting from 2 to 10 cc. of a 70 per cent solution of alcohol into each cervico-uterine ganglion. Relief from pain was given in twenty-two instances. In the other two cases, an improvement could be noted. The author has employed this treatment for nearly ten years. Functional disturbances never became manifest either during menstruation or during pregnancy. The first patients who were treated in this manner were given an anesthetic. Later the author added procaine hydrochloride to the alcohol and performed the injection without narcosis.

Strahlentherapie, Berlin

33: 199-398 (July 23) 1929

Action of Roentgen Rays on Cells. R. Glocker.—p. 199.
*Roentgen Treatment of Scleroma. H. Martenstein and G. Jung.—p. 206.
*Treatment of Cancer with Oxygen and with Carbon Dioxide Stasis. H. T. Schreus.—p. 243.
*Roentgen Treatment of Epithelioma of Tonsillar Region. H. Coutard.—p. 249.
Dosage in Radium Irradiation and in Radium and Roentgen Irradiation. T. C. Neeff.—p. 253.
Dosimetry of Cathode Rays. R. Thaller.—p. 263.
Physics of Thimble Ionization Chamber. R. Braun and H. Küstner.—p. 273.
Amount of Energy Absorbed by Tissues in Radium and Roentgen Irradiations. E. Stahel.—p. 296.
Degree of Action or Equal r-Unit Doses of Roentgen Rays of Various Wavelengths. J. Pierpenborn.—p. 322.
Treatment of Rickets. F. Peemöller.—p. 338.
*Calcium Content of Blood Following Ultraviolet Irradiation. H. Guthmann and W. Schol.—p. 348.
Reaction of Protein Following Ultraviolet and Roentgen Irradiations. B. Rajewsky.—p. 362.
*Prophylaxis of Inflammation by Means of Roentgen Irradiation. F. Freund.—p. 375.
*Roentgen Treatment of Postencephalitic Mental Disturbances. W. von Wieser.—p. 380.
*Lethargy Following Roentgen Irradiation of Scalp. A. Druckmann.—p. 382.
Destruction of Cholesterol in Blood Serum Following Roentgen Irradiation in Vitro. A. H. Roffo and H. Degiorgi.—p. 385.
Effect of Sunshine and Skyshine on Glass Transmitting Ultraviolet Rays. C. Dorno.—p. 389.
Measurement of High Tension Currents. D. Nasledow and P. Scharawsky.—p. 394.

Permanence of Cure in Roentgen Treatment of Scleroma.—On the basis of their experiences in the roentgen treatment of nine patients with scleroma, Martenstein and Jung question the possibility of permanent cure in this condition by means of roentgen irradiation. In one of their patients a recurrence occurred after a latent interval of sixteen years.

Treatment of Cancer with Oxygen and with Carbon Dioxide Stasis.—Schreus states that although it is still too early to draw conclusions with regard to the value of oxygen and of carbon dioxide stasis in the treatment of cancer, nevertheless it has been demonstrated conclusively that by means of this

method of treatment the hydrogen ion concentration of the blood of patients with cancer can be lowered. The importance of this fact is evident when one considers that in nearly all patients with cancer the hydrogen ion concentration of the blood is increased.

Results of Roentgen Treatment of Epithelioma of Tonsillar Region.—Of forty-six patients with epithelioma of the tonsillar region who were given roentgen treatment by Coutard between 1920 and 1926, twelve (26 per cent) are still alive and free from cancer after an interval since the treatment of from eighteen months to seven years. Three of the twelve patients received supplementary treatment with radium; in one of the three patients a small cancerous lymph node was removed surgically. In three of the twelve patients palpable lymph nodes were absent; in five of them extensive enlargement of the lymph nodes was absent at the time of treatment. Four of them had had massive inoperable collections of enlarged lymph nodes extending from the angle of the jaw to the clavicle. Nine of the patients treated with success had had extensive lesions passing far beyond the tonsils and the palatine arches and infiltrating the velum, the uvula or the sulcus glossopharyngeus and the sulcus glossomaxillaris.

Calcium Content of Blood of Pregnant Women Following Ultraviolet Irradiation.—In a study of the calcium content of the blood of forty-eight pregnant women before and after ultraviolet irradiation, Guthmann and Schol noted that instead of the decrease in the calcium content that is present normally, the calcium content of the blood of pregnant women was increased following roentgen irradiation. This increase in the calcium content of the blood is of great importance prophylactically, because as a result of it the development of various diseases such as subtetany and osteomalacia is prevented and the severity of other diseases as eclampsia and nephropathy is diminished. It is probable that the favorable action of ultraviolet irradiation in patients with preeclampsia is the result of the regulation of the calcium content of the blood. The authors believe that the systematic ultraviolet irradiation of pregnant women is to be recommended as a routine procedure.

Prophylaxis of Inflammation by Means of Roentgen Irradiation.—Freund studied the effect of postoperative roentgen irradiation on traumatic inflammation in the healing of wounds and fractures. He noted that whereas the sutured incisions in the skin of the abdomen in rabbits healed by second intention in areas that had not been irradiated with roentgen rays, they healed by first intention in regions that had been subjected to roentgen irradiation. The suppression of inflammation in the irradiated areas was recognizable macroscopically by reason of the smaller amount of exudate; after five days the edges of the wounds in the nonirradiated areas still gaped, whereas the edges of the wounds in the irradiated areas had united. Microscopically a definite modification of the course of the local inflammation could be demonstrated. The author also studied the repair of fractures in seventy-five rabbits in which both fibulas were broken under anesthesia and in which one of the two fractures in each animal was irradiated. The effects were studied roentgenologically, macroscopically in bones removed by dissection and microscopically in sections of the entire leg. It was noted that whereas on the nonirradiated side the callus formed was larger than the callus on the irradiated side, the consolidation of the fracture on the nonirradiated side required a longer time than the consolidation of the fracture on the irradiated side. In experiments in which both corneas of frogs were cauterized with a hot glass rod and in which one of the corneas was at once subjected to roentgen irradiation, it was noted that on the nonirradiated side the eschar was surrounded by a zone of infiltration whereas on the irradiated side it remained sharply delimited. In experiments in children the author found that roentgen irradiation of the skin either greatly weakens the tuberculin reaction or completely prevents its appearance.

Roentgen Treatment of Postencephalitic Mental Disturbances.—Von Wieser reports two cases of complete cure of mental disturbances following epidemic encephalitis, by means of roentgen irradiation of the skull.

Lethargy Following Roentgen Irradiation of Scalp.—Druckmann reports the development of lethargy in thirty out of 1,100 children in whom, to shorten the irradiation time for epilation in ringworm, roentgen irradiations of a much higher voltage than is ordinarily prescribed were used. The cerebral reaction appeared from six to eight weeks after the irradiation. The children became apathic, did not talk and slowly whispered answers to questions. The parents stated that the children wanted to sleep continuously, were awakened with difficulty and ate little. They frequently went to sleep while sitting or even while standing. Some of them complained of headache and in some of them a temperature as high as 38.5 C. (101.3 F.) was noted. Changes were not found in the urine and blood; in a few cases the pressure of the cerebrospinal fluid was increased. The condition lasted from four to six days in light cases and fourteen days in severe cases, and then disappeared completely. The children have been followed four years; in none of them have late physical or mental injuries appeared.

Wiener Archiv für innere Medizin, Vienna

17: 403-556 (June 10) 1929

*Significance of Hypotension. A. Strasser and W. Löwenstein.—p. 403.
*Fat Metabolism in Peripheral Tissue. W. Raab.—p. 439.
Effect of Solution of Pituitary on Water Metabolism. W. Raab.—p. 471.
*Modification of Acetonemia and Acetonuria with Sodium Bisulphite. O. Pucsko.—p. 513.
*Hypersensitiveness of Old Persons to Tuberculin. A. Müller-Deham and H. Jokl.—p. 519.
Sliding Scale for Study of Respiratory Metabolism. F. Stengel.—p. 539.

Significance of Hypotension.—On the basis of a study of hypotension in 108 persons with systolic blood pressures ranging between 110 and 100 mm. of mercury and 272 persons with systolic blood pressures of 100 mm. or less, Strasser and Löwenstein maintain that the term "essential hypertension" is unnecessary. Although hypertension is a disease and frequently leads to pathologic changes, hypotension is not a disease and does not lead to pathologic changes; in the great majority of cases hypotension is merely a constitutional variation. The authors believe that hypotension is caused by decreased irritability of the vasomotor center.

Fat Metabolism in Peripheral Tissue.—Using Bang's method Raab determined in man the total purified petroleum benzene fraction, the neutral fat and the free cholesterol in blood from the capillaries and from the veins. He found that in normal persons (in the morning with the stomach empty) the differences between the blood from the capillaries and the blood from the veins are inconstant. The eating of sugar antagonizes the retention of fat in the tissues, causing a mobilization of fat from the tissues to the blood. Insulin inhibits the mobilization of fat. Pituitary extract produces a constant decrease in the neutral fat content of the blood. In the patients with diabetes mellitus in whom lipemia is absent, the differences between blood from the capillaries and blood from the veins are just as little characteristic as in normal persons; in patients with marked lipemia, on the contrary, the venous blood usually contains a great excess of neutral fat. In cerebral and hypophyseal adiposity the fat content is unchanged. In the hyperlipemia that occurs in diabetes mellitus the free cholesterol is only slightly increased; the hyperlipemia consists chiefly in an increase in the neutral fat.

Modification of Acetonemia and Acetonuria with Sodium Bisulphite.—In searching for a suitable drug for combating ketone bodies in the blood, which constitute the chief danger in diabetes mellitus, Pucsko experimented with sodium bisulphite because this substance unites with acetone to form an insoluble compound. To determine the toxicity of sodium bisulphite the substance was first injected in solutions of various concentrations in animals; the intravenous injection of 2 cc. of a 5 per cent solution of sodium bisulphite in a rabbit did not produce the slightest harmful reaction. Small amounts of the substance (maximum dose, 2 cc. of a 5 per cent solution intravenously) were then injected in patients with diabetes mellitus. When sodium bisulphite was injected subcutaneously it did not produce a constant change in the content of ketone bodies in the blood of patients with diabetes mellitus; when it was injected intravenously, on the contrary, it produced in most of the patients a rapid, transient decrease in the amount of ketone bodies in the blood and in the urine.

Hypersensitiveness of Old Persons to Tuberculin.—In a study of the hypersensitiveness of old people to tuberculin, Müller-Deham and Jokl obtained positive Pirquet reactions in 267, or

92.3 per cent, of 300 persons aged more than 60 years. In consideration of the general decreased reactivity in old persons, the author regards this percentage of old persons who are hypersensitive to tuberculin as surprisingly high.

Wiener klinische Wochenschrift, Vienna

42: 957-984 (July 18) 1929

*Indications for Splenectomy. E. Lauda.—p. 957.
Heredity in Mental Diseases. Wagner-Jauregg.—p. 961. C'cn.
Diuretic Action of Salyrgan and Its Influence on Volume of Circulating Blood. S. Fehér.—p. 964.
Clinical Aspects of So-Called Caoutchouc Colloid Struma and Its Significance for Development of Fistula of Thyroid. W. Stöhr.—p. 965.
Experiences with Müller's Conglobation Reaction in Examination of 2,000 Blood Specimens. F. Lechner.—p. 968.
Clinical Aspects and Treatment in Pyloroduodenitis. M. N. Tscheboksarow.—p. 971.
Prophylaxis in Tuberculosis. E. Nobel.—p. 972.
Causes and Treatment of Constipation. A. Pick.—p. 973.
Prophylaxis of Orthopedic Diseases During Childhood. H. Spitzy.—p. 978.

Indications for Splenectomy.—Lauda points out that aside from the conditions in which only surgical indications speak for the removal of the spleen, splenectomy still presents many unsolved problems. As these surgical indications for splenectomy the author names: rupture of the spleen with secondary hemorrhages, echinococcosis and abscess of the spleen. He further discusses the indications for splenectomy in various diseases. In most cases of malaria, splenectomy should not be performed. It has been observed that when the spleen was removed during the latent stage of malaria, chills, fever and other symptoms of malaria appeared again after the operation. In myelocytosis, in leukemic lymphadenosis and in other leukemic conditions, splenectomy is contraindicated. In familial splenic anemia, it is sometimes necessary to remove the enlarged organ, but the author states that in these cases the therapeutic value of splenectomy is negligible, and it should be performed only in the advanced stages of the disease. Splenectomy is contraindicated in septic endocarditis, thrombophlebitic splenomegaly and tertiary syphilis. However, in cases of isolated tuberculosis, lymphogranulomatosis, and sarcomatosis of the spleen, surgical removal of the organ is advisable, whenever the diagnosis is definite. In the treatment of pernicious anemia, splenectomy is indicated only if all other methods have failed. Concerning the surgical removal of the spleen in cases of hemolytic icterus, the author states that it brings usually only temporary improvement. If, however, pernicious anemia and hemolytic icterus occur together, splenectomy is the treatment method of choice, but it should be combined with the usual therapy in anemia, particularly with blood transfusion. In the treatment of thrombocytopenic purpura, the removal of the spleen has brought good results. The author concludes that as yet no definite demarcations can be made concerning the indications and the contraindications for splenectomy. In order to reach definite conclusions and to clear the theoretical foundations for splenectomy, more practical experience and more careful investigations of the physiologic and pathologic conditions of the spleen will be required.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

66: 539-820 (Aug. 3) 1929

*Effect of Ingestion of Substances in Bile on Anemia Caused by Biliary Fistula. B. Seyderhelm, H. Tammann and W. Baumann.—p. 539.
Effect of Gonadectomy on Anemia Caused by Biliary Fistula. R. Seyderhelm and Tammann.—p. 557.
*Primary Work Hyperglycemia. F. A. Nolte.—p. 566.
*Mechanism of Spread of Fixed Virus of Rabies. W. H. Gantt and A. W. Ponomarew.—p. 582.
Electrostatic Properties of Human Fibrinogen. G. von Farkas and B. Groák.—p. 596.
Changes in Permeability of Ocular Blood Vessels Following Removal of Upper Cervical Sympathetic Ganglion. P. N. Wesselkin.—p. 614.
*Decreased Surface Tension of Urine in Exophthalmic Goiter. P. Suchinin and M. Boitschewa.—p. 618.
*Glycogen in Liver and Kidneys in Diabetic Patients Treated with Insulin. S. Bornstein.—p. 623.
Source of Creatine and Creatinine in Animal Organism. E. Abderhalden and S. Buadze.—p. 635.
Effect of Enteral Administration of Various Substances in Periodic Activity of Digestive Tract. N. P. Nechoroschew.—p. 653.
Calcium and Magnesium Contents of Cerebrospinal Fluid. Z. Stary, A. Kral and R. Winternitz.—p. 671.
Potassium and Sodium Contents of Cerebrospinal Fluid. A. Kral, Z. Stary and R. Winternitz.—p. 691.
Passage of Water and Ions from Liver to Blood, Lymph and Bile. K. Beckmann.—p. 702.
*Protein-Free Antigens. G. Zerbe and A. Zitek.—p. 718.
*Histamine and Periodic Activity of Digestive Tract. N. P. Nechoroschew.—p. 728.
Morphologic Changes in Capillaries in Scarlet Fever, Nephritis, Hypertension and Contracted Kidney. M. Klingmüller and H. Nevermann.—p. 734.
Action of Physostigmine on Muscle. K. Zucker.—p. 761.
*Effect of Histamine on Blood Pressure. F. Kisch.—p. 799.
Effect of Intravital Storage on Carbohydrate Metabolism. S. Bornstein.—p. 810.

Effect of Ingestion of Substances in Bile on Anemia Caused by Biliary Fistula.—In experiments on dogs with anemia caused by biliary fistulas, Seyderhelm et al. noted that the anemia was not influenced by the feeding of bilirubin, lecithin and cholesterol. Cholesterol had a toxic action. Both the feeding of cholesterol-free bile and the feeding of whole bile prevented the development of the anemia. Bile acid salts likewise prevented the development of the anemia. Irradiated ergosterol prevented completely the development of the anemia, whereas nonirradiated ergosterol had slight effect. From these experiments the authors conclude that, in dogs with anemia caused by biliary fistulas, vitamin D acts as the pacemaker in hematopoiesis.

Primary Work Hyperglycemia.—According to Nolte, primary work hyperglycemia is a physiologic phenomenon. It is independent of the amount of work done and is a symptom and a result of intense muscular exertion. It appears after about fifteen minutes of repeated compression of a hand dynamometer and reaches its maximum with an increase of 13 per cent in the blood sugar about twenty minutes after the exertion. Primary work hyperglycemia is independent of the kind of work performed. It is not the result of asphyxia and is also not dependent on work hyperthermia. Even in diabetic patients undergoing treatment, primary work hyperglycemia occurs after a short period of exertion.

Mechanism of Spread of Fixed Virus of Rabies.—Gantt and Ponomarew state that in dogs subcutaneous, intramuscular or intravenous injections of large doses of fixed virus do not produce rabies; the biologic examination of the brains of the dogs reveals that they do not contain fixed virus. Dogs in which subcutaneous or intravenous injections of fixed virus are made and in which some cerebrospinal fluid is withdrawn do not develop rabies and the brains of the dogs do not contain fixed virus. Dogs in which intramuscular injections of fixed virus are made, particularly into groups of muscles which have short nervous connections with the brain and in which some cerebrospinal fluid is withdrawn, develop typical rabies; by means of the inoculation of rabbits with the brains of the dogs it can be proved that they contain the fixed virus. The fixed virus of rabies passes from the point of infection to the central nervous system only along the nerves. In the centripetal penetration of the fixed virus of rabies both its active increase in the nerves and the lymph currents in the nerves play a rôle. In the infection of an animal with fixed virus the introduction of the virus into the nerve trunk is insufficient to cause rabies. For rabies to develop it is necessary for the virus to come into intimate contact with the axis cylinders; the conditions for this are most favorable in the peripheral nerves. The virus spreads not only along the connective tissue spaces of the nerve but chiefly and perhaps even exclusively along the axis cylinders.

Decreased Surface Tension of Urine in Exophthalmic Goiter.—In measurements of the surface tension of the urine in eighteen healthy persons and in forty-three patients with exophthalmic goiter, Suchinin and Boitschewa found that in the patients with exophthalmic goiter the surface tension of the urine was decreased and that the decrease was proportional to the severity of the clinical picture. They believe that the decreased surface tension of the urine in exophthalmic goiter is caused by the disturbances in the protein metabolism in this disease.

Glycogen in Liver and Kidneys in Diabetic Patients Treated with Insulin.—From the postmortem examination of the liver and kidneys in nineteen cases of diabetes mellitus in which the patients had been treated with insulin, Bornstein draws the conclusion that in diabetes mellitus insulin produces an increase in the protoplasmal glycogen in the liver and, in

cases in which the elimination of sugar is controlled, a disappearance of the typical glycogen picture in the kidney.

Protein-Free Antigens.—Zerbe and Zitek present experimental evidence disproving the contention of Weigmann and Liese that an antigenic alcoholic extract of tubercle bacilli prepared by them did not contain protein or nitrogen.

Histamine and Periodic Activity of Digestive Tract.—In experiments on dogs with gastric and intestinal fistulas, Nechoroschew noted that the enteral administration of histamine produced motor changes in the stomach and secretory changes in the stomach and intestine and that it caused variations in the periodic activity of the digestive tract.

Effect of Histamine on Blood Pressure.—Kisch states that the intravenous administration of 0.005 mg. of histamine in cats invariably produces a drop of from 30 to 40 per cent in the blood pressure. The drop in the blood pressure following the intravenous administration of histamine reaches its maximum in from fifteen to twenty seconds after the completion of the injection.

Zentralblatt für Chirurgie, Leipzig

56: 1729-1792 (July 13) 1929

Nitrous Oxide Anesthesia. P. Sudeck.—p. 1730.
Apparatus for Direct Projection of Roentgenograms. R. Klapp.—p. 1732.
Palliative Splenectomy. E. Beresow.—p. 1736.
*Extirpation of Parathyroid Tumor in Case of Generalized Osteitis Fibrosa. F. Mandl.—p. 1739.
Needle for Carrying Wire Bone Sutures. H. Knorr.—p. 1746.
Artery Clamp with Longitudinal Serrations. F. Steinmann.—p. 1747.
Instrument for Reposition of Bone Fragments. A. Mendler.—p. 1748.
Cholecystitis and Perforated Gangrenous Appendix. J. Sveinsson.—p. 1750.
Perforated Appendix with Total Lateral Transposition of Viscera. H. Schmidt.—p. 1751.

Extirpation of Parathyroid Tumor in Case of Generalized Osteitis Fibrosa.—In Mandl's patient, a man, aged 38, operation was performed after medication had failed to give results. The initial effect was seen in the excretion of a clear urine containing less than one sixth of the former amount of calcium. Five weeks following the intervention, the outline of the pelvis and of the femurs in the roentgenogram appeared clearer. The subjective condition of the patient was considerably improved; the pain had almost disappeared and he could leave his bed. Three years later the report was still favorable; the patient could take long walks using one or two canes and sit up for any length of time; he had put on weight. There was no pain on pressure over the bones. The basal metabolism was within normal limits. The indication for surgical intervention is given by increase of calcium excretion in the blood serum and especially in the urine. The resection of a parathyroid tumor should not be performed until it has been demonstrated that normal parathyroids are present. If several glands appear to be enlarged, a frozen section should be made during the operation to establish the diagnosis.

Zentralblatt für Gynäkologie, Leipzig

53: 1681-1744 (July 6) 1929

Serodiagnosis and Vaccine Therapy in Gonorrhea in Women. C. Bucura.—p. 1693.
Value of Ovarian Hormones in Treatment of Female Frigidity and Sterility. E. Lewi.—p. 1700.
Description of New Diathermy Apparatus. H. Guthmann.—p. 1703.
Treatment of Early Gonorrhea in Women. A. Stein.—p. 1708.
*Simultaneous Occurrence of Primary Carcinoma of Mamma and Primary Carcinoma of Cervix Uteri. R. Cordua.—p. 1711.
Relative Importance of Age of Woman and Form of Os Uteri in Prognosis in First Labor. B. Aschner.—p. 1716.
Leiomyoma of Small Intestine. N. J. A. F. Boerma.—p. 1717.
Spontaneous Rupture of Symphysis During Delivery. J. Shordania.—p. 1719.

Simultaneous Occurrence of Primary Carcinoma of Mamma and Primary Carcinoma of Cervix Uteri.—Cordua reports the case of a woman, aged 48, who had a cancer of the left breast and of the cervix uteri. Microscopic examination showed that they were only slightly different in structure. However, the author assumes that the circumstance that the lymph nodes of the axilla were completely free from cancerous metastases is sufficient proof that both of them were primary growths.

53: 1809-1872 (July 20) 1929

*Cancer and Tuberculosis of Uterine Tube. P. Klein.—p. 1810.
*Treatment of Diffuse Peritonitis. F. Seisser.—p. 1816.
*Stereoroentgenograms in Obstetrics. L. Drüner.—p. 1824.
*Prophylaxis of Postpartum Hemorrhage with Calcium. F. H. Bardenheuer.—p. 1826.
*Indications for Use of Calcium During Labor and Puerperium. S. Szenteh.—p. 1828.
Prolapse of Both Feet and One Hand in Vertex Presentation. K. Oppenheimer.—p. 1832.
Technic of Cesarean Section in Placenta Praevia. P. Rismondo.—p. 1834.

Cancer and Tuberculosis of Uterine Tube.—Klein reports a case of cancer and tuberculosis of a uterine tube in a nullipara, aged 47. From the microscopic study of the operative specimen, he believes that the tuberculosis did not constitute a precancerous condition. He also believes that it cannot be stated with certainty that the tumor as the primary condition had not constituted a locus minoris resistentiae in the localization of the tuberculosis in the uterine tube. He concludes that in all probability, however, the case is merely an example of the fortuitous concomitant occurrence of cancer and tuberculosis.

Treatment of Diffuse Peritonitis of Genital Origin.—According to Seisser, the only practicable treatment for diffuse peritonitis of genital origin is laparotomy. He prefers the median incision with simple drainage under light anesthesia, avoiding counterincisions, irrigations and injections. The diseased genitalia from which the peritonitis originated are removed only in cases in which this is technically easy; tumors with a twisted pedicle, however, constitute an exception to this rule. The perforated uterus is amputated only in cases of early peritonitis; in all other cases the perforation is merely closed with sutures. The author is not in favor of the prophylactic suturing of a loop of intestine to the abdominal wall even in cases in which paralytic ileus is already present before the operation; in the latter cases it raises the mortality from 69 to 75 per cent. If necessary, ileostomy may be performed later. If the condition of the patient permits it laparotomy should be performed even when more than three days has elapsed since the beginning of the peritonitis.

Value of Stereoroentgenograms in Obstetrics.—Drüner states that a good stereoroentgenogram gives the dimensions not only of the maternal pelvis but also of the fetal head. One cannot always measure stereoscopically in the roentgenogram the diameters that are measured after the birth of the child; this, however, is unnecessary because one is able to determine the position and shape of the fetal head and to measure it as it lies and from these measurements determine the typical diameters.

Use of Calcium Gluconate in Prophylaxis of Postpartum Hemorrhage.—Bardenheuer discusses the results he obtained with intramuscular injections of calcium gluconate in fifty-seven women from one to several hours before labor. The average amount of blood lost in the fifty-seven spontaneous deliveries was only 180 Gm. The author believes that his results were better than the results of other authors have been because of the manner in which he administered the calcium. When calcium salts are given intravenously, the calcium content of the blood rises abruptly at once but falls sharply again after a few minutes. When calcium salts are given intramuscularly, on the contrary, the calcium content of the blood rises less abruptly but remains at its maximum for several hours. Since the hemostatic action of calcium depends on its concentration in the blood, one can readily understand both the unsatisfactory results obtained formerly with calcium chloride, or other calcium salts which could not be given intramuscularly because of their necrosing action, and the good effects of intramuscular injections of calcium gluconate.

Indications for Use of Calcium as Hemostatic During Labor and the Puerperium.—Szenteh believes that in labor the intravenous injection of calcium as a hemostatic should be limited to the following conditions: (1) slight atonic and parenchymatous hemorrhages in which pituitary preparations and ergot are ineffective; (2) profuse atonic hemorrhages (calcium combined with hypophysis extract) and (3) diseases accompanied by decreased coagulability of the blood (thrombopenia, scurvy, hemorrhagic diathesis and some acute infectious diseases). In the puerperium it is indicated in all cases in which the lochia is bloody after the fourth day and in which the coagulability of the blood is decreased.